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PATENTS FOR INVENTIONS.

ABRIDGMENTS
OF
Specifications
RELATING TO
COOKING, BREAD-MAKING, AND THE PREPARATION OF CONFECTIONERY.

A.D. 1634–1866.

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS.

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PREFACE.

THE Indexes to Patents are now so numerous and costly as to render their purchase inconvenient to a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the printed copies of the latter are sold have been added.

The number of Specifications from the earliest period to the end of the year 1866 amounts to 59,222. A large proportion of the Specifications enrolled under the old law, previous to 1852, embrace several distinct inventions, and many of those filed under the new law of 1852 indicate various applications of the single invention to which the Patent is limited. Considering, therefore, the large number of inventions and applications of inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions will, from time to time, become apparent, and be supplied in future editions.

This volume contains Abridgments of Specifications to the end of the year 1866. From that date the Abridgments will be found in chronological order in the "Chronological "and Descriptive Index" (*see* List of Works at the end of this book). It is intended, however, to publish these Abridgments in classes as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place, the reader (by the aid of the Subject-matter Index for each year) can continue his examination of the Abridgments relating to the subject of his search in the Chronological and Descriptive Index.

The present series comprises cooking utensils and appliances of every description; kitchen ranges, grates and stoves intended for cooking; baker's ovens and apparatus for bread-making; apparatus and new materials employed in the preparation of all kinds of confectionery. These are the principal heads. Stoves not specially constructed for cooking or baking have not been included. Abridgments relating to them will be found in the series entitled, "Pre-"paration and Combustion of Fuel." Preservative processes applicable to food have already been treated in the series, "Preservation of Food," and are in consequence not again dealt with here; but processes for "preserving" fruit in the sense of making a jam or confection of the fruit have been admitted. This series also embraces machines for mincing meat, making sausages, paring and slicing fruit, peeling and washing potatoes, triturating vegetables, and beating eggs. No mills or apparatus for the production of flour from grain have been included; but processes of treating the flour to prepare it for making into dough have been considered as belonging to the subject.

Inventions relating to the manufacture or preparation of yeast, yeast powders, and baking powders are included; but methods of treating or operating upon yeast only for the purpose of extracting the beer which it contains, in order that the latter may be available for ordinary consumption, are excluded, and will be found in the series of Abridgments relating to "Brewing."

Inventions connected with the preparation of macaroni and vermicelli are included. Processes specially applicable to the manufacture of culinary utensils have been admitted; those for the general manufacture of metal vessels will be found in a future series. Meat safes, refrigerators, cooling apparatus, &c., have not been admitted.

The Abridgments marked thus (* *) in the following pages were prepared for another series or class, but as they also relate to subjects belonging to the present series, they have been reprinted in this volume.

B. WOODCROFT.

June, 1873.

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INTRODUCTION.

To give any account of the progress of the art and science of cooking would be here somewhat out of place, so the following remarks will be mainly confined to the utensils and implements employed in the various processes of cooking.

The earliest implements of all primitive nations seem to have been much the same. In the East, processes of cooking were always affected by ceremonious and religious observances. Esau's mess of pottage is one of the earliest specified dishes. It was probably made of vegetables boiled up with oil or fat, or with a sort of broth made from bones and gristle. A similar mess is now common in the East. Amongst the Hebrews the meat seems to have been most commonly boiled, either in water or milk, and the meat and broth to have been served separately; salt, spices, and other flavouring ingredients were employed. Roasting on a spit was alsc a mode of cooking, but one less common than the other. The Paschal lamb was roasted whole, but probably the Hebrews, like the modern Arabs, generally roasted their meat in small pieces, on spits stuck in the ground, and occasionally turned as the process went on. Birds were roasted whole, and doubtless a common dish was formed of locusts roasted on a spit. The Persians now bake kids and lambs in an oven; perhaps the Hebrews did the same. Fish were generally broiled on the embers, or cured. The hearth was formed of stones, with other stones to support the cooking-pots. Of the utensils, we hear of cauldrons, frying-pans, basins, and flesh-hooks or forks.

Wilkinson gives details of the cooking processes carried on by the ancient Egyptians. After the conquest of the country by the Persians, habits of luxury seem to have been introduced, and the Egyptians had the character of being profligate and luxurious, and given to an immoderate love of the table. From various representations in the tombs, a tolerably complete picture of an Egyptian kitchen has been obtained by the author above mentioned. We see the slaughter of the animal, whose blood was often caught in a vase for purposes of cookery. The meat was boiled or roasted. The boiling was effected in a large cauldron, supported on a tripod, over a fire, the heat of which was kept up by bellows worked by the feet. The broth was meantime skimmed with a spoon, or stirred up with a large fork. These cauldrons are represented of various sizes, and were probably used for stewing or boiling. Sometimes they were supported on stones over the fire. For roasting, a spit was used, sometimes over a fire contained in a grate of special form. Faggots of wood and charcoal seem to have been the usual fuel. Round balls, apparently of some charcoal or other composition, were also employed. For pounding up various ingredients a mortar was employed. Siphons seem to have been commonly used for drawing off liquids out of the various receptacles in which they were contained.

Pastry and bread were made in the kitchen or in an adjoining room. Both seem to have been of very various kinds and shapes. The forms of animals were not unfrequently imitated in paste, but the commonest shape appears to have been a long roll. The dough was kneaded by the hands and feet. Seeds were often sprinkled over the roll, as is now done in modern Egypt. A sort of macaroni was made of thin paste, stirred with a wooden spatula, and drawn out by pointed sticks. This was baked in a flat pan over the fire.

Turning to the oldest European civilisation, that of Greece, we find that the art of cooking was carried to a considerable height. The Lacedæmonians of course were frugal and temperate in their habits, and it is said that the Bœotians were gross and coarse in their feeding as in all else. The Athenians, at least in the palmiest days of the republic, were noted for their simplicity in matters of eating, but Corinth was luxurious in her feasts. However, it was in Sicily that the cooking art was chiefly cultivated, and Sicilian cooks were ever in greatest request. Even the literature of the art was not wanting. Plato, in his "Gorgias" speaks of a Sicilian book on cookery, and there were many others on the subject, chief amongst them the Γαστρολογία of Archestratus. A lively and tolerably complete account of this last-named book is given in the elder Disraeli's "Curiosities of Literature." Athenæus also gives abundant particulars about Greek cookery. The ordinary meal at Athens was generally cooked by the female slaves, under the direction of the mistress of the house, but for special occasions it was usual to have professional cooks (μάγειροι). There were a great number of these, and the best of them, as above noticed, were Sicilians. They stood with their utensils at a particular spot of the market-place, while in another part were cooking vessels and crockery for sale or hire. We have not been able to light upon anything like a list of cooking utensils used in Greece, but we may perhaps be justified in supposing that they did not greatly differ from those in use in Roman houses, which we shall presently describe. The bread was sometimes made at home, but more generally brought from the ἀρτοπώλιδες or bread-sellers. It was of various sorts. The two most common were the μάζα, a kind of frumenty or soft cake (the μυστὴ μαζα was of barley and wine) and the ordinary wheaten or barley bread.

Of the Roman kitchen and its appurtenances we find an excellent account in one of the excursus to Professor Becker's "Gallus," a book which, it is hardly necessary to say, anticipates any researches into Roman household economy. In earlier years the *culina* or *coquina* (kitchen) was simply the *atrium* or principal room of the house. As luxury increased, a separate chamber was provided, and it was placed at the back of the house, at all events in towns. In the country, kitchen and hall still continued to be the same. Some of the city kitchens were large, and instances are mentioned of their being adorned with frescoes. A usual ornament over the hearth was a snake. Paintings of the Lares, the gods under whose protection was the household furniture, were also common. The hearth or fire-place seems to have been a low, flat platform of brick or stone. It was sometimes divided by partitions. The flues were short. Tripods or braziers were also employed, these latter being portable. In the richer houses there would frequently be a *pistrinum* or bakehouse close to the kitchen, but the poorer classes bought their bread from a public baker. The ovens in this bakehouse were round, seven or eight feet deep and broad, and were heated by a fire below. The flues were pipes of clay about ten inches in diameter.

As for the utensils, when we remember the immense variety of a Roman banquet under the empire, we can hardly doubt that as many different cooking vessels were required as in a modern kitchen. There were kettles (*ahena*), which were hung over the fire, and had covers (*testa*) or not as required; seething pots (*cacobi, cucumæ, lasana*) of earthenware and metal, sometimes of silver; pans (*sartagines, patinæ*), flat, and shallow; vessels of special shape, the *miliarium*, shaped like a millstone, a tall narrow vessel for heating water rapidly, and the *anthepsa*, a vessel with a receptacle below for holding charcoal. Then there were tripods for supporting vessels over the fire; gridirons (*craticulæ*);

strainers (*cola*), some of these of osier; funnels (*infundibula*), sometimes of glass; sieves (*cribræ*); spoons and ladles (*trullæ* and *truæ*); knives (*cultri coquinares*), mortars (*pillæ*); coal-scoops (*prunæ batilla*); steel yards (*trutinæ*). Vessels, of course, for holding and carrying water there were of various sorts, with and without handles. The *urnarium* was a square table on which the water vessels stood.

In large establishments the work of the kitchen was divided amongst a whole crowd of slaves:—Bakers (*pistores*), pastry-cooks (*dulciarii*), cooks (*coqui*), sausage-makers (*fartores*), confectioners (*placentarii*), and others. The marvellous results of their labours have often been remarked upon. We hear of such dishes as a boar half roasted and half boiled, vegetables cooked and carved so as to resemble various sorts of flesh, and other similar devices. A favourite trick was to prepare all sorts of surprises for the guests, and numerous instances of such ingenuity are on record. The curious in such matters may be referred to Petronius, or to the description of the banquet in Professor Becker's work above cited.

Passing on to mediæval times, we find that Italy seems to have been the birthplace in Europe of the cooking art, thence it passed to France, and from that country it came to us.

A very curious old Italian work, by Bartolomeo Scappi, "Maestro dell' Arte del Cucinare," published first at Rome in 1572, and afterwards reprinted at Venice in 1622, gives a complete account of the kitchens of the times, and the utensils used in them. The book is copiously illustrated, and there are representations of almost every sort of vessel. There are cauldrons and kettles of all shapes and sizes; some with strainers in them. One very large one is represented as swinging at the end of a lever, by which it can be removed from the fire. There are knives, forks, ladles, and spoons; graters, rasps, and stirrers; buckets, jars, and meat-safes, screw presses, gridirons, and frying-pans of various sorts. Several roasting-jacks are represented, one worked by smoke or hot air, and one by a spring. In the latter there are three horizontal spits, connected by gearing, and the line from the barrel of the spring passes round a fusee. Such are some of the multifarious implements figured and described. The curious thing about them is, that they so exactly resemble those in use at the present day. There is even a whisk, to be rotated by holding it between the hands, while they are rapidly rubbed backwards and forwards. So far as the actual cooking vessels are concerned, we seem to have made but little improvement since Signor Scappi wrote.

In France, to judge from the receipts in the old cookery books, the appliances must have been as numerous as those above described, and as complicated, but it was a long time before the English kitchens were so well supplied. Our ancestors, the first English, or Saxons, do not seem to have excelled in cookery. Perhaps they preferred quantity to quality, for they were great eaters. Strutt, in his "Manners and Customs of the English," engraves a representation of a Saxon feast, in which the meat is served on spits, as cooked, and fish and other matters in bowls. Hardicanute, we learn, was a great feaster, and "caused cunyng "cooks in curiositie."

The Normans probably brought over French cookery with them, which, even then, was greatly esteemed. William had a large kitchen establishment, with many servants. Of the culinary vessels in use we have not found any description. Perhaps we may feel pretty sure that they were not very elaborate or numerous. Coming down to times a little later, we find that, in the sixteenth century, the great Earl of Northumberland ate from a wooden trencher. Probably most of the cooking vessels were earthenware, though in the earl's household book it is mentioned that two brass cooking pots were bought for 26*s*. 4*d*. This was at a time when a quarter of wheat cost 6*s*. 8*d*. and a sheep 17*d*. Pewter vessels were a luxury for table use, and were generally hired. Even in Elizabeth's time, plates of metal and earthenware were uncommon, though Hollingshead tells us that "treene" (wooden) platters and spoons were going out, and tin and silver coming in. Forks were, of course, unknown in England till long after this time; Coryat, who travelled through Europe in James II.'s time, remarked that the Italians had a curious custom of using forks in cutting their meat, and was much laughed at for attempting to introduce forks into England. Here, or in France, they were not used for a long period afterwards. Even Montaigne used to eat with his fingers.

Spoons are said to have been introduced in the reign of Elizabeth. Fynes Morrison, in his "Travels," cautions Englishmen against using the "spoone and forke" of Italy.

For a long time our neighbours the Scots were considerably behind us in their domestic appliances. Joshua Barnes, in his "History of Edward III," (quoted in Southey's "Common-place "Book," vol. iv., p. 29), says:—

"Nor yet had they (the Scots) any pans or cauldrons to dress
"their meat in, for what beasts they found (as they always did
"good store in those northern parts) they would seeth them in
"their own skins, stretched out bellying on stakes in the manner
"of cauldrons; and having thus sod their meat, they would take
"out a little plate of metal, which they used to truss somewhere
"in or under their saddles, and laying it on the fire, take forth
"some oatmeal (which they carried in little bags behind them
"for that purpose), and having kneaded and tempered it with
"water, spread that thereon; this being baked."

In England the spit was for a long time turned by hand, though, as we have seen above, jacks were used on the continent. In "Gammer Gurton's Needle," a very old English comedy, written about A.D. 1550, a beggar says:—

"And many a broche-spit have I turned and basted."

Also in a "Book of Account," A.D. 1569, there is an entry,—

"For turnynge the spytte, iiii*d*."

It is well known that dogs were trained to this duty.

As we get down to more modern times, we find a multiplicity of apparatus, description of many of which will be found in the succeeding pages. There is however an apparatus that deserves mention, especially as its inventor refused to patent it, thinking that more general good would be effected by its getting into common use than would accrue if the invention were protected by a patent. This is the apparatus still known as Papin's digester. The principle upon which it is based is exceedingly simple. As is of course well known, the temperature of boiling water is not constant, but depends upon the atmospheric pressure. Thus, at the summit of a high mountain, where the pressure is low, ebullition takes place at a much lower temperature than it does at the sea-level. As a matter of experiment, it is found to be quite impossible to perform certain culinary operations in very elevated regions, because the heat of boiling water is not sufficiently great. These remarks only apply to the boiling of water in open vessels, but by using a tightly-fitting lid we have the power of causing water to boil at any temperature we choose, the confined steam creating an artificial pressure within the closed vessel. The digester, then, is nothing more than a steam-tight saucepan or boiler, furnished with a safety-valve to prevent explosions, and some means of varying the pressure (and with it the temperature) at which it is considered desirable work.

A description of this apparatus was first given to the world by the illustrious inventor, in 1681, in a work entitled, "A new "Digester or Engine for softening Bones, containing the De- "scription of its Make and Use in these Particulars; viz., "Cookery, Voyages at Sea, Confectionary, Making of Drinks, "Chymistry, and Dying. By Denys Papin, M.D., Fellow of the "Royal Society. London: Printed by J. M. for Henry Bon- "wicke, at the Red Lyon in St. Paul's Churchyard, 1681." The work appears to have created some sensation, as a French translation was published in Paris in the following year, and in 1687 the author issued "A Continuation of the New Digester of "Bones, &c." Papin, like most inventors, appears to have had a very exalted opinion of his contrivance, by the help of which, he says, "the oldest and hardest cow-beef may be made as "tender and as savoury as young and choice meat." His public spirit would not allow him to seek the protection of letters patent, for he says, "I have not therefore thought it right, in a thing of "so general use, that a man by virtue of a patent, should hinder "other people from working, that may perhaps have more skill "in doing things good and cheap; and I have instructed "Mr. Mayor, a founder, in Old Bedlam, how to make these "engines of cast brass, so that any body may see them and buy "them of him." That the apparatus was used was quite certain, for we find that Evelyn in his "Diary," under date April 12, 1682, describes a supper at the Royal Society, all the viands being cooked in Papin's digestor. He says:—

"I went this afternoon with several of the Royall Society to "a supper which was all dress'd, both fish and flesh, in Mon- "sieur Papin's digesters, by which the hardest bones of beefe "itself and mutton were made as soft as cheese, without water "or other liquor, and with lesse than 8 ounces of coales, pro- "ducing an incredible quantity of gravy; and for close of all a "jelly made of the bones of beefe the best for clearness and good "relish and the most delicious that I had ever seene or tasted. "We eat pike and other fish bones, and all without impediment; "but nothing exceeded the pigeons, which tasted just as if baked "in a pie, all these being stew'd in their own juice without any "addition of water save what swam about the digester, as *in* "*balneo;* the natural juice of all these provisions, acting on the "grosser substances, reduced the hardest bones to tenderness; "but it is best descanted, with more particulars for extracting "tinctures, preserving and stewing fruite, and saving fuel, in

"Dr. Papin's booke, published and dedicated to our society, of "which he is a member. . . . . This philosophical supper "caused much mirth amongst us, and exceedingly pleased all "the company. I sent a glass of the jelly to my wife, to the re-"proach of all that the ladies ever made of the best hartshorn."

Papin appears to have made innumerable trials with his apparatus, and his two books, which together make up a quarto volume of about 180 pages, consist mainly of a record of his various experiments. So anxious was he to give the public all possible information as to his engines, that he arranged for a series of public demonstrations, which he announces in these words:—"I undertake to let people see them try'd once a week "in Black Fryars, in Water-lane, at Mr. Boissonet's, over against "the Blew Boot, every Monday, at three of the clock in the "afternoone." He has certainly succeeded in handing down his name to posterity in connection with the digester, and he is, we think, much better known as the inventor of the apparatus than as a profound natural philosopher who was in intimate scientific relations with most of the eminent *savants* of his day. As a proof of the estimation in which he himself held his invention, we may remark that in his portrait in the Aula at Marburg (where he was professor for some years) he is represented with a copy of his "New Digester" in his hand, the plate of the apparatus being conspicuously displayed.* In connection with this digester it

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* With regard to the economy of the digester as compared with the ordinary modes of cooking, we are not aware that any trustworthy experiments have ever been made. The only comparative trials which we remember to have met with are those published by Professor Junichen, in the September number of Dingler's *Polytechnisches Journal* (Vol. 205, p. 412). His results are given in the following table:—

—	Ordinary Saucepan.		Papin's Digester.		Per-centage of Saving.	
	Time, in minutes.	Gas, in cubic feet.	Time, in minutes.	Gas, in cubic feet.	Time.	Gas.
Beef - - -	159	2·49	43	0·55	72·95	77·91
Pork - - -	117	2·89	38	1·08	67·52	61·70
Potatoes - - -	53	1·43	20	0·5	62·26	65·03
Split peas - -	92	1·7	34	0·68	63·04	62·94
Haricot beans - -	113	1·7	48	0·77	57·52	54·70
Damsons - -	27	0·59	9	0·22	62·50	62·71
Pears (whole) - -	167	3·15	52	1·22	68·86	61·27
„ (in slices) - -	162	2·5	46	0·78	71·60	68·80
Apples (in slices) -	134	2·52	43	0·58	67·91	76·98
Chestnuts - -	147	3·12	57	0·97	61·22	68·91

The experiments appear to have been performed with care, and Professor Junichen gives full details of the circumstances under which they were carried out. The apparatus employed seems scarcely to have been as scientifically con-should be mentioned that the safety valve figured in the picture is the first known to have been used on any boiler.

Of the more recent improvements in cooking apparatus, most are connected with the stoves and ranges rather than with the utensils. In the 1851 exhibition there were 31 exhibitors of cooking apparatus, and in that for the present year * though one section is specially directed to "cooking and its science," there are no more than 49. This is a proportionately small increase, and would seem to show a correspondingly small amount of variety or improvement. On the other hand, considerable alterations for the better have been made in our cooking stoves. Gas, which is now extensively used, seems to offer sufficient advantage, as regards cleanliness and readiness of application, to induce a considerable use of it in the place of coal; and even where coal is used, the application of scientific principles to the fire-places in which it is burnt has effected considerable saving. The abnormally high price of coal during the winter 1872-3 attracted special attention to this point, and the Society of Arts have been thereby led to offer prizes for grates constructed so as to provide the greatest amount of heat with the smallest consumption of fuel.† As at present constructed our open fire-places discharge most of the heat evolved up the chimney, and even in the most effective close ranges there is enormous waste of heat. It is, of course, quite useless to expect that scientific appliances, such as are

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structed as it should have been. Gas was used as the heating medium, from the great facility which it afforded for comparing the quantity of heat consumed in the various experiments. The same vessel appears to have been employed throughout, but when used as a saucepan it was simply closed by an ordinary loosely-fitting lid. It was of copper, but only held seven decilitres, or about a pint and a quarter.

The pressure at which the digester experiments were made was five atmospheres—the temperature corresponding to such a pressure being 152 C., or 306 F.

* 1873.

† The following were the prizes offered by the Society of Arts:—

1. For a new and improved system of grate, suitable to existing chimneys as generally constructed, which shall, with the least amount of coal, answer best for warming and ventilating a room.—*Gold Medal and Fifty Pounds.*

2. For a new and improved system of grate, suitable to existing chimneys as generally constructed, which shall, with the least amount of coal, best answer for cooking food, combined with warming and ventilating the room.—*Gold Medal and Fifty Pounds.*

3. For the best new and improved system of apparatus which shall, by means of gas, most efficiently and economically warm and ventilate a room.—*Gold Medal and Fifty Pounds.*

4. For the best new and improved system of apparatus which shall, by means of gas, be best adapted for cooking, combined with warming and ventilating the room.—*Gold Medal and Fifty Pounds.*

5. For any new and improved system or arrangement not included in the foregoing, which shall efficiently and economically meet domestic requirements.—*Gold Medal and Fifty Pounds.*

successfully employed in engine furnaces for economising heat, can ever be used in household fire-places which are in the hands of ignorant servants, but it is probable that we shall soon see considerable improvements upon our present fire-grates.

Some mention of bread has already been made. Most of the following details have been extracted from a recent series of articles on the subject contributed to the *Food Journal* by Mr. S. Phillips Day. It is there stated that the honour of having first made wheaten bread was claimed by the Athenians. According to their mythological story it was they who taught the use of it to mankind. In the historical age *gourmands* considered the common wheaten bread made in Athens superior to any in all Greece. This, indeed, formed the staple article of food for the large population of Attica, which in prosperous times numbered 520,000, inclusive of the slaves, who formed four-fifths of the community. About 600,000 quarters of wheat were consumed annually. A goodly portion of this was imported from foreign countries, especially from the Tauric Chersonese, or as it is now called, the Crimea.

According to the same authority, the inhabitants of Lapland are necessitated to improvise a sort of bread out of dried fish, mixed with the powdered bark of the pine tree. The Norwegians concoct their bread by the admixture of barley and oatmeal, which they bake between two hollow stoves. Owing to the failure of the crops in the Northern districts of Finland during 1867, when one night's frost plunged the whole country into misery, famine, and despair, introducing "famine typhus," and making fearful ravages amongst the starving thousands, rich and poor, the bread given to sustain life was composed of pease-straw combined with Iceland moss and a very small portion of flour. Even the root of the *Batonus Umbellatus*, without any admixture of flour, had to be resorted to, and with advantage, although this water-plant is scarce. As a last resource a bread was actually baked and distributed to the famishing people the constituent parts of which consisted of two parts clay and one part flour.

The natives of Whidah (coast of Guinea) make their bread from Indian corn, which they grind between two stones. The former, on which a small quantity of corn is placed after it has been for some time soaked in water, is smooth and broad; the latter is then employed until the corn is reduced to meal by the two-fold process of bruising and friction. The dough thus formed is made into circular lumps, which are either boiled in an earthen vessel, or else baked over the fire on iron or stone. The bread thus rudely manufactured is termed *Kanki,* which combined with a little palm oil, forms the chief diet of the people.

In ancient times various materials were converted into bread, such as potatoes and different kinds of earth, while during the seige of Paris by Henry IV., the bones of charnel houses were brought into requisition for this purpose. So scarce had bread become at one time in France, that people of the highest quality were wont to carry pieces of it with them when they were invited out to dinner. Even in England, on the authority of a trustworthy writer, bread had to be manufactured of "such grain as "the soil yieldeth; nevertheless, the gentility commonly provide "themselves sufficiently of wheat for their own tables, while their "household and poor neighbours, in some shires are enforced "to content themselves with rye or barley; yea, and in time of "dearth, many with bread made either of beans, peas, or oats, "or of altogether, or some acorns among." A peculiar bread called *militaris* was at one time prepared by soldiers and officers while in camp, with their own hands. For this purpose hand-mills were occasionally employed. The general practice, however, was to pound the corn in a mortar, when the meal would be mixed with water made into a cake, and afterwards baked on live embers.

Attempts have been made to render wood fibre alimentary, and with a certain degree of success; but the process is so troublesome and expensive that it can never supply a common article of food. The experiment was first tried by Professor Autenrieth, of Tubingen. The chief difficulties he sought to overcome were the treatment of the fatty matters contained in the woody fibre, and the compact aggregation of the material itself. Hence he rejected such woods as the fir and the oak; the former owing to the resin it contains, the latter in consequence of its astringency. The birch and the beech he considered best adapted for his bread experiments, as possessing little taste or smell.*

On the 17th of June 1824, bread was first ordered to be sold by weight in London, and an Act passed in the reign of William IV., came into operation on 1st October 1836, extending the same practice to the provinces. By an enactment of Victoria (July 4, 1838), all former laws relating to the sale of bread in Ireland were repealed, and a new assize established in that country. In the year 1754 the cost of bread was 4*d.* per quarten loaf. In 1757 it rose to 10½*d.* During 1800 (when new bread was forbidden under a penalty of 5*s.* the loaf if sold under twenty-four hours' old), it had increased to 1*s.* 5*d.* In January 1801, it was 1*s.* 11*d.*; in July 1810, it had advanced to the high figure of 2*s.* 5*d.*; in 1823 it declined to 10*d.*; and in 1833 to 8½*d.*, or about the price at which the quarten loaf ranges at present.

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* A full account of Professor Autenrieth's various experiments may be found in the Edinburgh Magazine, vol. i. (1817).

COOKING, BREAD-MAKING, AND THE PREPARATION OF CONFECTIONERY.

A.D. 1634, November 19.—N° 75.

PRUSEN, HILDEBRAND, and STRACHY, HOWARD.—Patent to the above, granting the sole use for fourteen years in trust for John and Jacob Drebble, and Abraham Rusfeler, and Anne his wife, of an invention (by the father of the said John and Jacob Drebble and Anne Rusfeler, then deceased).

" C'tayne stoves and furnaces of yron, of brickworke, and of
" earth, very comodiouse and fitt for heating of water or any
" other liquor, making of salt out of salt water alone, or of salt
" upon salt, for the heating of any roomes in dwelling howses,
" or any househould affayres, or hott howses for the drying of
" saffron, hoppes, fruites, sweetmeates, gunnes, gunpowder, salt-
" peter, or the like, and of mault, or any other kynde of grayne
" to be donne with seacole, charcoale, peate, turfe, or any other
" kynde of fewell, and that the said stoves and furnaces doe
" convey both the heate and smoke thereof soe secretly and so
" safely that noe daunger or annoyance can happen to be, either
" in regard the heate may thereby be increased, moderated, or
" abated to any ꝑporcion, or degree that shalbee held most fitt
" or requisite for any the uses aforesaide, with much lesse charge,
" shorter tyme, lesse attendaunce, and without any touch of
" smoake, and of fayrer hue, and much sweeter, both for smell
" and taste, then heeretofore hath bin donne by any other."

[No Specification enrolled. Letters Patent printed, price 4*d*.]

A.D. 1635, July 23.—N° 85.

HALSE, Sir NICHOLAS.—" Certaine necessarie kilnes, prin-
" cipally for the sweet and speedy drying of mault and hoppes
" by the use of sea coale, turfe, broome, furres, brakes, hearth, or
" any other fewell, and that without touch of smoake, and very
" vsefull likewyse for bakeing, boyling, roasting, starching and

"of callavances, fine wheat flour, salt and water." Thirty pounds of callavances are to be boiled in thirty gallons of water. They are to be sprinkled with flour, covered with bay leaves, and left for six days spread out on a table. Forty pounds of common salt are to be boiled in water, and the callavances put to stand for five months in the water. At the end of that time the liquid is to be strained off.

[Printed, 4*d*. No Drawings.]

A.D. 1769, February 16.—Nº 917.

SCOTT, George.—"A boiler, pot or utensil, to be made of "any kind of metal, for the more convenient dressing of ships' "provisions with sea water or any kind of water; for making "sea water fresh; for purifying and making sweet any kind of "water; and for the more expeditious method of boiling any "kind of fish, flesh, or provisions of any sort, and extracting "broths or soups."

"A copper or boiler is to be prepared agreeable to the dimensions required, and made quite close, either by screwing the "lid on, or by fixing it on by any other method that will keep it "close. Another vessel is prepared, which may be fixed upon "the boiler, or placed by the side of it, or anywhere at no very "great distance from it. This latter is also to be made quite "close by screwing the lid on, or by any other adequate method. "The copper or boiler is to be filled with sea water or any other "water, which is to be made to boil. The provisions to be "dressed are to be put in the other vessel, that is, to be placed "on the top of it, or by the side, or near the boiler. A communication by a pipe is to be made between the copper or "boiler and the other vessel into which the provisions are put, "which is to convey the steam arising from the copper or boiler "into the other vessel, by which steam the provisions are dressed. "A stop cock is to be added to the pipe, either to let the steam "in or to keep it out of the vessel which contains the provisions, "as occasion may require. Another pipe and stop cock is also "to be fixed to the copper or boiler that contains the water, "which is to be opened when provisions are not dressing, to let "the steam escape out of the copper or boiler."

"It is immaterial what shape, make, or dimensions the "coppers, boilers, or other vessels are of, provided the steam is "conveyed from one to the other, as the whole process whether

" for dressing provisions, &c., or making salt water fresh, or " purifying & making sweet any water, is performed by steam."

[Printed, 4*d*. No Drawings.]

A.D. 1769, December 9.—N° 944.

HORNBUCKLE, RICHARD.—" Iron oven."

The drawing shows a frame mounted on a tripod stand. Underneath and in front is the grate with the oven behind it. Round the oven are passages " to carry the heat." There are " two inner " plates up to the bottom of the bakeing part," " a partition from " the grate to the first inner plate to divide the heat," " three " small flues to the middle one to let the steam out," and " two " outer ones to vent the draft of heat." A " composition of " earth " is placed between the plates at the back.

A stove of similar shape is figured, but it is not said that it is available for cooking.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 6th Report, p. 137.]

A.D. 1770, July 19.—N° 964.

STRUTT, JOSEPH, and STRUTT, JEDIDIAH. — " Engine for " roasting, boiling, or baking of meat."

The stove is portable, and may be used on board ship. It stands on three legs and has an ash-pan below the grate. There are cheeks moveable by a rack, and a blower above the grate. Above the blower is an aperture for the jack. The funnel is formed large to receive the " fly " of the jack, and afterwards contracts. The fly is formed of vanes fixed in a wheel, and is mounted on a conical axle terminating in a tube. This tube fits over the spindle of the jack, and engages on a pin upon it, but may be disengaged. The spindle works in a cap of leather above and in a socket below. It gives motion by means of gearing to another spindle which drives the spit by a pulley and endless band. The horizontal spindle may be moved slightly from side to side, but a spring prevents it from being moved sufficiently to disengage the teeth of the cog-wheels. There is a tin reflector of " eliptick form." A tin pan receives the drippings; it has a handle for removal, and has projections for sliding on to the bottom of the reflector. The reflector has a lid at top. It is set on a wooden frame, and attached to slides in the grate. Behind the reflector is a plate-warmer, and in its sides a rack for the spit. Baking may also be performed in the reflector.

[Printed, 4*d*. No Drawings. See Rolls Chapel Reports, 6th Report, p. 137.]

catch. When the catch is let go the block falls upon an anvil below. The vessel may be made of one piece in a pair of dies, or in two pieces which are afterwards soldered together. There are several blocks of various weights. The handles and feet are made separately and rivetted or soldered on. They are afterwards planished by hammers of the usual sort, and finished in the usual way.

[Printed, 4*d*. No Drawings.]

A.D. 1780, April 7.—N° 1251.

ELWELL John.—" Making the several utensils and articles of " various denominations and sizes used for the purposes of " cookery or confectionery, or for boyling, baking, frying, stew-" ing, preserving, or for any other uses or purposes whatsoever " of pure grain tin, with or without another metal."

The inventor makes the various vessels " of the most perfect, " refined and pure tin mettal " with or without another harder metal such as "tooth and egg mettal or white copper, or any " other hard mettal." The vessels are cast, hammered out, or made in any other suitable way.

[Printed, 4*d*. No Drawings.]

A.D. 1780, June 29.—N° 1261.

REDMAN, William.—" The Salisbury portable kitchen for " roasting, boiling, or baking any kind of provision."

" The body or furnace is made oval or round, of wrought or " cast iron, tin, or copper. Within it is placed a grate for the " fire, and in the upper part a pot for boiling with water and " steam, or a plate for baking. Underneath the fire is a vacuity " open in the front, serving as a receptacle for the ashes as well " as admitting a current of air to pass through the fire, thereby " carrying off any smoke or dust through a tube or funnell affixed. " A front is fixed to the furnace before the fire, which joins close " to a reflector, purposely to confine the heat so as to roast and " boil, or do either separately, with a very small quantity of fire. " The reflector is made of tin, brass, or copper. A spit goes " through it, and at the bottom a dripping pan is so fixed as to " draw off the gravy, that the meat may be easily basted at a " door which is made on the top or any convenient part. A grid-" iron may be fixed occasionally in the place of the spit for broil-" ing, with an additional reflector placed obliquely underneath

" it, or occasionally an iron plate may be placed in the reflector " for the purpose of baking. They may also be made with two " reflectors, to fix to the same body, for roasting two or more " joints at once, which is a full and true description of the said " invention."

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 7, p. 105.]

A.D. 1780, July 5.—N° 1262.

LEVY, Jacob.—" The art of making from wheat, the growth of " this kingdom, semolina, from which vermicelli and macaroni " are manufactured."

" The wheat is ground in a power mill, and the flour separated from the midlins; the said midlins are dressed in a " boulting mill in four different sorts, and then sifted through " parchment sieves till all the bran and pollard is separated " from it."

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 5, p. 383.]

A.D. 1780, October 21.—N° 1267.

ROBINSON, Thomas.—" Kitchen range."

" The range is made to wind up with one cheeck only when " annexed to an oven (the side of the oven forming the other " cheeck); the end of the range to which the bars and pinion is " fixed is a cast-iron cheeck, with hob and front the same, but a " standard may be made of wrought iron. The top bar in front " is made to fall down occasionally to a level with the second " bar; the lowest bar but one from the bottom is halved with a " pin and loop at one end, and made with a round pivot at the " other end, to be taken out for the purpose of raking out the " fire; the other bars may be made to take out also. In the " same manner the middle bar of the three bottom bars is also " halved as above described at one end, and a long pivot made " at the other end to go through the back leg, which is fixed in " the standard below the oven for the purpose of hanging on an " outside regulator or cheeck with a hole in it for that purpose, " and which has a handle fixed to it to put it up between the " oven and the fire, or let it down under the range, or may be " taken away at pleasure. The standard in which the bars are " fixed has a return from the bottom under the oven, forming " an opening or groove for the regulator to fall into; but the " standard may be made without this regulator, and with a " shoulder for the oven to rest upon. The moving cheeck is

" made of either wrought or cast iron, with a socket on it to " receive the spindle of the swinging trivet. The top part of " the cheeck is made to fall down as low as the round bar, and is " hung upon pivots with two loops, and is kept up by a spindle " of the swinging trivet. Sliding spit racks are fixed at each " end of the range. The back of the range is made of cast iron, " cast with a hole in the middle, and beveld at the end to unite " to the oven. The oven is made of cast iron, nearly square in " front, with a wrought-iron door hung with hinges on one side, " and fastened with a handle and turnbuckle on the other, and " shuts upon an iron rabbit inside. The oven fillets are also " made on the sides of the oven for the shelves to rest upon. " The largest ovens being wider behind than in front, the shelf " is made in two parts or pieces, and jointed, that it may be " taken out occasionally; and also the shelf has a notch or mortice on the side next to the fire for to receive a regulator, which " is also notched, to fixed upon the shelf. The ovens may be " made entirely of wrought iron. The range must be set or fixed " in the chimney in the usual way; but the oven must be " enclosed in brick and mortar." "Ranges without ovens " annexed to them are made to wind up on both sides with " either cast-iron or wrought-iron racks and pinions."

[Printed, 4*d*. No Drawings.]

A.D. 1780, December 8.—N° 1271.

BRODIE, ALEXANDER.—" Ship stove, kitchen, or hearth, with " a smoak jack and iron boilers."

"The stove, kitchen, or hearth is made of wrought iron, and " such part thereof as may be affected by the fire covered with " cast iron, except the ventilator and hood, which are made of " copper. The hearth is nearly of a square form or shape, the " frame of which contains a range or grate with two cranes, one " or two iron boilers, one or two iron ovens, and one ventilator. " To the outside of the said frame are fixed two or three iron " rails for hanging stewing stoves upon. The hood over the " range and flue for boilers are made of iron, with an easy slope " of the size of the flue or funnel where the fly of the smoak " jack is. The range is made with a folding top bar, two rivets " to turn round, and one or two cranes with a stay to each. " The oven is made according to the space of the room between " the back of the range and the inmost side of the fire-place of " the boilers. The ventilator for carrying off foul air in a

" funnell about six inches in diameter, is fixed under the slope " which conveys the fire round the boilers. The said funnel " goes through the deck of the ship below, and may be con- " veyed to any part of the ship, or where the sick people are " kept. The square iron boilers have screwed cocks fixed in " the bottoms, and are made of plate and bar iron. The bottom " frame is made of two, three, or four inches iron kneed square, " with two rows of holes (one row for the bottom, and the other " for the sides) countersunk for rivetting the bottom and sides " together, and putt together with rivetts. The corner pieces " are nearly the same. For the sides, there is an upper or top " rail to the said boiler, to which the sides are fixed on the inside " of the frame with countersunk holes and rivets. The said " frame is made of flat iron, from two inches to six inches " broad under the edge of the said frame, and regulates the " height of the flue round the boilers, which flue is enclosed by " three or four kneed plates of iron, screwed or rivetted to the " top of the frame of the hearth. The boilers have double covers " for the conveniency of cleaning the same, and are made with " only one row of holes for rivetting, and adding a triangular " piece in the corner, or of a triangular form, by which triangular " piece the boilers may be put together with nuts and screws, so " that there may be new sides and bottoms put in them in case " of any accident by being broken. The smoak jack is fixed with " an iron bar, by nuts and screws, to the hood or of the funnell " of the ship's hearth. The spindle where the chain wheel is " fixed comes through the funnell, and is supported at the end " by a stay, which is secured to the side of the hearth, and is " made with one, two, or more flys, with a worm wheels or " pinions, and may be used for pumping of water, or extracting " foul air, as well as turning the spit. There are stewing stoves " with iron frames and drawers for ashes, made to hang or stand. " There are double dish'd screwed plates to mend the boilers in " case of accidents by shot or otherwise. The said hearth is " chiefly put together with nuts and screws for the purpose of " being taken to pieces with more ease."

[Printed, *4d.* No Drawings. See Repertory of Arts, vol. 7, p. 22.]

A.D. 1783, March 25.—N° 1361.

LANGMEAD, JOSEPH.—" Manufacturing of fire-grates."

" These fire-grates are for the use of cooking either in kitchens, " or in camps, or in ships." " One side of the frame or front is an

" oven, which stands part over the range barrs. Above the oven " is a closett, which is kept hot with the same fire as heats the " oven. This oven is of an angelar form at bottom, which being " placed over a part of the fire obliges the fire to circulate round " on the extreme parts of the oven, and keeps the same in a " regular heat. The top of the oven is either of a sexagon or " cylindrical form; at the back of the oven is a funnell, which " conveys the smoak into the flue of the chimney. The front of " the oven shows the nature of the flue round the same." "The " other side of the front or frame contains a boiler which boils, " being placed part over the range bars, and is heated by the " same fire. The boiler has an open chanell or flue all round it. " At the back end of the boiler is a flat funell, which carries the " smoak into the flue of the chimney. This boiler is of cast iron " or of copper; it has a framed closet above it, which keeps out " the dust or soot, and incloses the steam from going into the " room. In this closet is a hole on one side, to let the steam " into the chimney. In the cast-iron boiler is a screw socket, " cast for the use of a cock, which may be screwed on and off at " pleasure. From the top of the hot closet in front to the top of " the steam closet is a plate of iron from one to the other, which " forms the whole into a square frame and incloses the whole " opening of the chimney. The sides of the flew or channel " round the oven and boiler are cast iron; the back of the range " is of the same mettle. The range part for the fire hath a bar " on the top to let down or to draw out, to form a double bar for " the use of setting saucepans, &c. on it. The range hath two " cheeks, which wind up on each side to shift the fire under the " oven or boiler, or both, at pleasure. This fire grate, when for " the use of camps or ships, hath an iron or copper funell to " carry the smoak off."

[Printed, 4*d*. No Drawings.]

A.D. 1783, October 2.—N° 1389.

WINGFIELD, SAMUEL.—"Machine for cooking, wherewith a " person might bake, boil, broil, stew, &c. at one and the same " time."

"The machine for cooking is made of wrought or cast iron of " any dimensions, and consists of a front of iron, sides and top " of iron, and sometimes stone or brick, and an iron, stone, or " brick back to fit the place where it is intended to be put up, " with a space for the fire, with a boiler," "made of iron or copper,

" with a division in it, and one or more cocks, with one or more " ovens," "an iron plate or plates for stewing or broiling," "a hot " closet for keeping victuals hot," "and steam closets," "with " doors to each in the front of the machine, fitted with hinges. " The fire-place is fixed near the bottom of the machine," "with " a door, or with bars in front with or without a door, together " with an ash hole under it." "The ovens, boiler, and hot closet " are on each side or both sides of the fire, and sometimes over " it, as is most convenient to the situation in which the machine " is to be placed, and heated by means of internal flues or channels," "which lead the fire round the machine, with funnels " made of plate, iron, or copper to convey the smoke away," " and also to convey the steam away," "with small doors to clean " side and top of oven." "This machine is so contrived as to " admit of being divided into two parts," "and by that means " becomes useful for small families, who may want an oven, " boiler, and hot closet without the upper part; and as the fire-" place may have bars in front if required, instead of a door, it " may be used for roasting."

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 6th Report, p. 142.]

A.D. 1783, November 14.—N° 1395.

CLARKE, Richard.—"Bottoms for bakers' ovens."

The first part of the invention relates to kilns.

"And as to the second part of the said invention, to wit, the " bottoms for ovens, with regard to their nature, are also upon " a construction entirely new, and also to be made wholly of cast " metal iron; and the same are also far superior to anything of " the kind at present in use, both with respect to saving of fuel " and time, and being sooner made hot, and retaining their heat " longer than stone, brick, or any other materials which are now " generally made use of for bakers ovens; the same are to be " made to consist of flatt plates from half an inch up to any " thickness, and to be made square, oblong, round, or of any " other shape, and of such dimensions as shall be agreeable to " the purchaser."

[Printed, 10*d*. Drawing.]

A.D. 1784, January 16.—N° 1413.

BECK, Stephen.—"Ships' hearth or stove with copper and iron " kettles for the dressing of victuals on board of ships whereby

" such victuals are not only more commodiously dressed, but " much less fuel is consumed."

[No Specification enrolled.]

A.D. 1785, January 28.—N° 1463.

BECK, STEPHEN.—" Ships' hearth."

The hearth or stove has the sides of cast iron, and the rest of copper or wrought iron. The back has " an elbow or bend projecting outwards toward the top," to economise room, " with a " perpendicular funnel." In front is a range of bars, with spit racks. On the top are trivets, and a cross bar with hooks to hold kettles. The front slopes forward. Behind and under the grate is a cast-iron oven, with a plate underneath to retain the heat. Over the back of the grate are " two oblong square kettles " of copper or rolled iron plate or cast iron. A sliding door comes down over the fire. Flues pass up between the kettles. Two folding doors in front close in the whole apparatus. The hearth is fastened down to the deck by rings.

[Printed, 6*d*. Drawing.]

A.D. 1785, February 18.—N° 1465.

MARTIN, JOHN.—" Roasting jack, with pulleys and other appurtenances, on a new construction, which I call a tourne-" broche."

" The tourne-broche consists of a stock or frame which carries " a large main wheel, with a stroke wheel on its arbor, between " the main wheel and a baril or wind-up piece, which main wheel " has teeth on the rim, both vertical and contrate, or vertical " only. When vertical and contrate, the contrate teeth give " motion to a side wheel, on the arbor of which is another stroke " wheel, and the vertical teeth move a center wheel made either " with or without teeth, in the center of which is a pinion which " turns on a stud fixed to a plate hung at one end by a pin or " stud, and gives motion to a vertical balance or fly over the " center wheel, to which it is kept up by a spring on the plate. " When the main wheel is made with vertical teeth only, the side " wheel is left out. The balance is hung either on a stud or in a " frame on centers or points. On the back of the baril or wind-" up piece, and between that and the stroke wheel, is a spring " hung on a pin, which spring is thrown forward by a cock spur

" while the jack is winding up, so as to catch hold of the balance " and keep it, and consequently the stroke wheel, in motion. To " the front of the frame is fastened a boss piece, in which the " arbor of the baril runs, and to which is fixed a spring or springs, " and a crank, by moving which crank to the right or left the " spring or springs are pushed forward, which either regulates " the motion of the jack or stops it. Over the arbors and studs " are caps or collars, to guard them from dust or filth. The " pulley consists of frames, in which are two or more shieves or " pullies turning on pins. The improvement consists in fixing " bars or guards on the frames so near the edges of the shieves " or pullies as to prevent the line from being by any accident " thrown out of the grooves in the shieves or pullies, or, as is " commonly expressed, from being put out of pulley."

[Printed, *4d.* No Drawings. See Rolls Chapel Reports, 6th Report, p. 172.]

A.D. 1787, February 1.—N° 1589.

TATE, JAMES.—" Fire-grate and utensils for cooking."

The inventions is applicable to kitchens, ships' hearths and other places, and may be used in " any travelling carriage or " machine." The range is as usual but with an aperture behind. In this aperture is fitted a cylinder, which has another cylinder joined to it at right angles, so as to stand vertical. These cylinders form a vessel in which steam is generated. It is supplied with outlet and inlet water pipes, a steam pipe, and a safety valve. It may be arranged in various ways for the heat to act upon it, and may be varied in shape. Steam passes from it to vessels for cooking. These vessels may have short conical tubes to admit the steam, such tubes fitting on the end of a pipe from the steam pipe, or they may be made double, and the steam may be admitted between the two cases. An oven may be used which has a double case, the steam being admitted between the outside and inside lining. The whole apparatus may be made on a small scale, and be heated by a lamp.

[Printed, *4d.* No Drawings. See Rolls Chapel Reports, 6th Report, p. 176.]

A.D. 1787, October 30.—N° 1625.

BLUNT, RICHARD TILLYER.—" New-invented composition to " be used as yeast."

"To make a yeast gallon of the above composition, to be used "as yeast, such yeast gallon containing and to contain eight beer "quarts: Boil in common water eight pounds of potatoes as for "eating, bruise them perfectly smooth, and mix with them "whilst warm two ounces of honey, or any other sweet, and one "beer quart (being the eighth part of a gallon of yeast) of com- "mon yeast; and for making bread, mix three beer pints of the "above composition with a bushell of flower, using warm water "in the making of the bread. The water to be warmer in winter "than in summer, and the composition to be used a few hours "after it is made; and as soon as the spunge (the mixture of "the composition with the flower) begins to fall the first time, "the bread should be made and put into the oven."

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 5, p. 171.]

A.D. 1788, June 30.—Nº 1656.

NAYLOR, JOHN.—"Oven for baking bread and all kind of "victuals."

"The vessel or oven may be made of various forms; its differ- "ence from all other ovens arises entirely from its turning round "while the bread or victuals contained in it remain in a fixed "position. To produce this movement the front or mouth of the "vessel or oven will be made round, as it there rests upon a frame. "The back part of the vessel or oven is supported by a bolt, which "goes through the centre of the vessel or oven into a frame be- "hind, where it is made fast. The frames, as well as the vessels "or ovens, will be made of different forms and sizes so as to suit "different occasions, but in every form and size the principle of "action or rotative motion is exactly the same; and this principle "or motion may be produced either occasionally by hand or regu- "larly by a common kitchen jack upon that end of the bolt which "supports the back of the vessel or oven; within the same will "fixed a frame, to which shelves will be placed for holding what "may be put into the oven for baking, and such shelves may be "fixed or moveable, and will be formed differently according to "the size and shape of the oven. And I, the said John Naylor, "do hereby aver and declare that the above is a particular discrip- "tion of the nature of my said invention, and in what manner the "same is to be performed."

[Printed, 4*d*. No Drawings.]

A.D. 1788, August 15.—N° 1666.

HANSCOMBE, William.—" An invention on a mathematical " principle for roasting a great number of joints of meat, fowls, " &c., horizontally and vertically."

It appears that a series of wheels are driven from one main wheel and that each of these wheels carries and turns a spit. Motion is given to the main wheel by means of one or more weights.

[Printed, 4*d*. No Drawings. See Rolls Chapel Reports, 6th Report, p. 179.]

A.D. 1789, June 23.—N° 1689.

CONWAY, Henry Seymour.—Applying the heat of coke ovens for baking bread, etc.

Openings are made in the coke oven, to admit the heated air into flues which circulate about baking ovens. These ovens should be built with a varying thickness of brickwork, thicker near the coke oven, and thinner at the parts farthest from it. " The baking ovens may also be heated by the admission of the " flame from the coke oven into them through a large opening " for as long a time as may be necessary." Dampers in the flues regulate the heat, or shut it off entirely.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 3, p. 75; also vol. 4 (*third series*), p. 377; Rolls Chapel Reports, 6th Report, p. 180.]

A.D. 1789, December 8.—N° 1713.

BAYNES, John.—" Soup ladles, tureens, gravy spoons, ladles " and skimmers."

These and other similar articles intended for skimming a thick fluid from the surface of a thinner one, are made " with a division " or partition within the same, leaving one or more apertures " close (or nearly so) to the bottom " of the ladle, etc., " in order " for the densor fluid to pass through " the apertures. The top of the ladle, etc., may be covered or open, and the implement may be made of any suitable material.

[Printed, 4*d*. No Drawings. See Rolls Chapel Reports, 6th Report, p. 181.]

A.D. 1790, March 24.—N° 1737.

FREEMANTLE, William.—" Improvement on the vertical " weight and spring roasting jacks."

The description is not very easy of comprehension. A cog-wheel fastened on the top of a spring barrel gears into another wheel which drives a "suspended pinion," from which, apparently, the meat is hung.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 6th Report, p. 182.]

A.D. 1792, March 2.—N° 1859.

TATE, JAMES.—"Machine with utensils for cooking on improved "principles."

A cooking-place of the usual sort is employed. A steam pipe is fitted with numerous short tubes each fitted with a valve opening inwards. The cooking vessels are fitted with a pair of short concentric tubes each, which fit on to and over the tubes of the steam pipe. The insertion of the tube opens the valve, and communication is established between the boiler and the vessel containing the food to be cooked.

[Printed, 4*d*. No Drawings. See Rolls Chapel Reports, 6th Report, p. 185.]

A.D. 1792, September 7.—N° 1907.

ARMITAGE, WILLIAM.—"Kitchen ranges, stoves and grates."

The bars of the range curve inwards towards the fire, so as to present a concave surface to the outside. The front and bottom of the grate, or either of them, may be made to move backwards and forwards by a rack and pinion, a screw or otherwise. By this means the pin may be lessened, or extinguished. The top bar may let down, and there may be "cheeks" of the usual construction, to wind up and down. The bottom may also swing on a joint at one end, to let the fire fall out into the ash pit below.

[Printed, 6*d*. Drawing.]

A.D. 1792, December 21.—N° 1927.

HOWARD, STANLEY.—"Pneumatic kitchen."

"The steam boiler and cooking vessels being made in the usual "way, such boiler is to be supplied with water by a fountain "reservoir," "which is to be placed at a convenient distance "therefrom, with its discharging tube," "inverted in a cistern or "pipe," "in which cistern or pipe the surface of the water will "by means of the fountain be preserved always at one height," "and by a communication" "from the said cistern or pipe with

" the steam boiler," "the water therein during the evaporation, " will be preserved at a height corresponding with such cistern " or pipe, and always at the same level." " By means of the said " fountain, the necessity of cocks and pipes or pumps for supplying the boiler is removed, and the supply rendered more immediate, more certain, and more simple than by any method " heretofore used. The said fountain may be made of any " materials or in any form suited for the purpose."

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 10, p. 147.]

A.D. 1794, May 7.—N° 1985.

STRATTON, George, and DORR, Samuel Griswould.—" Improved grate, range or stove."

Instead of passing direct to the chimney, the smoke, etc. is led through flues along the sides and back of the grate and under the hot plate, and thence to the chimney. This stove is available for various purposes besides cooking.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 1, p. 289.]

A.D. 1794, May 7.—N° 1986.

WHITTINGTON, William.—" Machine for roasting meat and " all other food."

A train of clockwork is driven by a weight, and regulated by a fly-wheel. It drives a spit direct, or it may drive a shaft, from which, by means of gearing, motion is given to any number of spits fixed in a frame.

[Printed, 6*d.* Drawing. See Rolls Chapel Reports, 6th Report, p. 189.]

A.D. 1795, September 8.—N° 2064.

PROSSER, John.—" Improvement on smoke jacks."

The " fly " in the chimney, by means of a worm on its shaft, drives a cog-wheel, and this drives another on a shaft from a pulley on the end of wheel. Motion is given through an endless band to the spit.

[Printed, 6*d.* Drawing. See Rolls Chapel Reports, 6th Report, p. 146.]

A.D. 1795, September 18.—N° 2065.

BRAITHWAITE, John.—" Improvements in the construction " of smoke jacks."

The wheel in the chimney is made like a paddle wheel with flaps or boards, and has its axis horizontal. Below it is a screen, so that the ascending air acts only upon one side, so as to revolve the wheel.

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 6, p. 1.]

A.D. 1796, February 22.—N° 2091.

MATHEW, Felton.—" Method of compleately separating the " beer from yeast, and preserving the yeast."

The yeast is put into bags of sail cloth or similar material, and pressed in a wooden press either by a weighted lever or a screw. To prevent the bags from bursting, they are placed in a trough with perforated sides and bottom. Next, the yeast is spread upon frames of canvas, etc. and dried in a kiln. As it dries it is crumbled down by rubbing it with a board. When dry, it is stored in air-tight vessels. For use, it is to be dissolved in " a small quantity of warm worts, or sugar and water of the " temperature from eighty to ninety degrees."

[Printed, 4*d.* No Drawings. See Repertory of Arts, vol. 5, p. 73.]

A.D. 1796, June 28.—N° 2118.

WHITTINGTON, William.—" Portable baking stove."

The stove is mounted like a table on four legs. The fire-place is at one end, and the flue passes out at the other. Above the fire is a stone plate on which the bread is baked, behind it is another plate " for soaking the bread." These plates are covered by a loose semi-cylindrical lid. Another oven may be fixed on behind the fire, and below the flue.

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 12, p. 78.]

A.D. 1796, December 5.—N° 2150.

TATE, James.—" Machine for cooking upon improved prin- " ciples."

This invention consists of a stove applicable especially for use on board ship. One part of it relates to the boiler, which is formed with a partition extending to near the bottom of the vessel. One portion of the boiler may be used for boiling food, and the other employed to generate steam, which is conveyed to separate vessels for cooking purposes. A steam oven or cupboard, with shelves, is used, but does not appear to be claimed as part of the invention. Another part refers to a method of turning a jack by a jet of steam from a boiler directed against the vanes of a wheel like a water-wheel or of other shape. Steam may be directed upon the "fly" of an ordinary smoke jack. Another part relates to a pan or plate for broiling, which has affixed to it a metal thermometer.

A portable stove is described. Two ovens are made with a slanting passage or flue between them; below this flue is a lamp. and above it a vessel for boiling may be placed. Instead of this vessel a broiling pan may be used. The oven may be cased round to confine the heat.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 8, p. 4; Rolls Chapel Reports, 6th Report, p. 191.]

A.D. 1799, February 28.—N° 2296.

HICKLING, SAMUEL SANDY.—"Improving and beautifying "certain vessels and utensils used for chymical, culinary, and "various other purposes."

Four compositions for lining vessels are given; they are:—

1.—6 parts calcined flint.
2 „ "potters' composition," or "Cornish china "stone."
9 „ "litharge of lead."
6 „ borax.
1 „ argillaceous earth.
1 „ nitre.
1 „ "calx of tin."
1 „ purified potash.

2.—8 parts calcined flint.
8 „ red lead.
6 „ borax.
5 „ "calx of tin."
1 „ nitre.

3.—12 parts "potters' composition," or "Cornish china "stone."
8 „ borax.
10 „ white lead.
2 „ nitre.
1 „ "white marble calcined."
1 „ argillaceous earth.
2 „ purified potash.
5 „ "calx of tin."

4.—4 parts calcined flints.
1 „ "potters' composition" or "Cornish china "stone."
2 „ nitre.
8 „ borax.
1 „ "white marble calcined."
½ „ argillaceous earth.
2 „ "calx of tin."

The compound is powdered, mixed, fused in a crucible, allowed to cool, again powdered and washed. It is then mixed with mucilage and water, and the vessel is coated with it and heated in a furnace. Colouring matter may be introduced into the compound.

In the second part of the invention, vessels are made of a compound of iron and nickel. They are then immersed in a solution of copper in acid, until they are covered with precipitated copper. To change the coating into brass, the vessels are covered with an amalgam of 12 parts zinc to 5 quicksilver, and heated so that the quicksilver is driven off. The same process may be applied to vessels wholly of iron.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 12, p. 361.]

A.D. 1800, May 1.—N° 2394.

DARBY, Robert, and NICHOLS, Morgan. — "Portable "ovens."

The oven consists of a double case mounted on a stand. Below it is a funnel to conduct the heat against its bottom. The heat passes between the inner and outer case. There is a false bottom, to check the violence of the heat. It is of various materials and various shapes. The heat may be applied in any convenient manner. It is available for use on shipboard and elsewhere. The description is very meagre, being contained almost entirely in the references to the drawing.

[Printed, 6*d*. Drawing.]

A.D. 1801, February 5.—N° 2473. (* *)

POWER, James.—"A portable oven."

This oven is constructed of two concentric cases, the space between which forms a flue, through which the hot air passes, and heats the inner or oven part. The bottom of the outer case is sometimes made of a conical shape, which seems to "split" the flame, and protect the oven from the direct heat of the fire. The oven is provided with a valve at the top to allow of the escape of gas from the articles being baked; a second oven may be placed above the first and be heated in the same manner.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 14, p. 365.]

A.D. 1801, May 12.—Nº 2500.

WALKER, Edward.—"Portable stove or kitchen."

The following is all the description given:—

"The whole to be made of cast or wrought iron, with fire-place
" in centre, inclosed with a door, ash-hole under, a closet on each
" side, one of which will serve for the purpose of baking, &c., the
" other to contain two spits, racks, &c. complete. The top to
" be used for the purpose of a boiling plate heated by the same
" fire; the smoak conveyed through an iron funnell, in which is
" fixed a smoak-jack to turn the spits."

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 15, p. 318; Rolls Chapel Reports, 6th Report, p. 199.]

A.D. 1801, June 26.—Nº 2522.

STRATTON, George.—"Machines for cooking, and fire-" places."

A boiler is constructed so that the heat may be applied to the bottom and sides equally. The boiler is supported on ribs, so that a space is left surrounding its lower part. The fire is contained in a "dish" below the centre of the boiler, but the heated air passes round and about all the lower portion of the boiler. For supplying oil to that part of a smoke-jack which is contained in the chimney, a pipe is led to the box containing it from a vessel without the chimney. The box is closely shut and so kept free from soot. The oil is supplied to the bottom of the "main " wheel" turned by the "fly," and distributed from it by means of a spring resting against its top, to the remainder of the mechanism.

A method of warming a house by hot air pipes is also shown.

[Printed, 8*d*. Drawing. See Rolls Chapel Reports, 6th Report, p. 199.]

A.D. 1802, February 19.—N° 2583.

HIGGINS, Bryan.—" Apparatus for heating air."

The greater part of the Specification is occupied with a description of a drying kiln, but a cooking apparatus is also described.

The flue from a stove circulates underneath a hot-plate. Some height above the plate is a cover which shuts it in, but the chamber thus formed extends over the stove, and the heated air from the front of the fire has free access to the chamber. Meat may be roasted at the stove end of this chamber, and vessels boiled by standing them on the hot-plate. The flue goes round three sides of an oblong, and comes out at the end where the stove is, beside it.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1802, February 27.—N° 2585. (* *)

BODLEY, George.—" Portable stove or kitchen for the purpose " of dressing victuals."

This stove is constructed with an oven at one side and a boiler at the other; a flue passes from the upper part of the stove round three sides of the oven under and up one side of the boiler and then into the chimney, the whole is covered with a plate upon which vessels can be warmed.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 5 (*second series*), p. 410.]

A.D. 1803, June 21.—N° 2715.

STORCK, Peter.—" Substitute for brewers' yeast."

Six pounds of malt are mashed in three gallons of water. The mixture is covered and put to stand for three hours. The liquor is then drawn off, and two pounds of moist sugar added for every gallon. It is stirred and put in a cask just large enough to hold the amount of liquor. The bung-hole of the cask is covered with brown paper. The liquor is to be " blood warm," and is to be kept in a warm place. It stands four days, and an equal quantity of malt and boiling water, without sugar, is prepared and mixed with it. The whole is let to stand for forty-eight hours, and it is ready for use. This is " the fermentation." Next, twenty-six ounces of hops are boiled in twenty-six gallons of water for two hours, till the quantity of liquor is reduced to sixteen gallons. This is mashed with malt to the amount of two pounds to each gallon of water. The liquor is put by to stand at a heat of 190°. It is then drawn off. Ten gallons of water at the same heat are mashed up with the same malt, and the liquor drawn off separately. To the first liquor while "blood warm" four quarts of "the fermentation" are added. This is then set to stand ten hours. The second liquor is then added, and the mixture put to stand for six hours. It is then available for bread-making and the usual purposes of brewers' yeast. The directions for use are as follows:—"Two gallons are sufficient for twelve "bushels of bread, set quarter spong, blood warm; let it come "to its full height, which it will in four hours or rather more, "and keep it cooler than brewers' yeast throughout the whole "process."

[Printed, 4*d*. No Drawings. See Repertory of Arts (*second series*), p. 241; Engineers' and Mechanics' Encyclopædia, vol. 1, p. 241.]

A.D. 1805, February 12.—N° 2823.

COE, CHARLES.—"Flue upon an improved construction ap- "plicable to the heating of ovens."

A metal flue is fixed obliquely into a corner of the oven for admitting heat. A slide closes the flue and a door in front of it allows the fire to be fed.

[Printed, 6*d*. Drawing.]

A.D. 1805, April 29.—N° 2842.

HOBSON, CHARLES, and SYLVESTER CHARLES.—Making vessels of zinc.

A method of making zinc wire is described. For making culinary and other vessels of zinc, the metal is cast into ingots or thick plates, and rolled at 210° to 300° Fahr. "or thereabouts." It is then "hammered up into vessels for culinary and other "purposes by the same treatment as is applied to other metals, "taking care, when the size or form or other intended requisites "of the vessels require it, to heat or to anneal the zinc at proper "times during the operation." Vessels may also be "stamped, "forged, or otherwise made of zinc," by working it at the above heat, or after it has been annealed by exposure to that heat. For soldering them, a solder of "two parts tin and one part zinc, or "thereabouts" may be used.

[Printed, 4*d*. Drawing. See Repertory of Arts, vol. 8 (*second series*), p. 404; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 926.]

A.D. 1806, June 24.—N° 2945.

GOULD, Chester, **BOURNE**, Thomas, and **CHAMBERS**, William.—"Machine or engine for roasting meat by the power "of steam, and for other purposes."

A wheel like an overshot water wheel is placed in a corner of a boiler; as the steam is generated, it collects under the buckets of the wheel, and revolves it. The power thus generated is applied in any convenient manner for turning a spit. "Con-"ductors" or metal plates, are used to guide the steam against the vanes. A steamer for steaming vegetables may be placed on the top of the boiler. One of the figures shows a reflector behind the meat.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 7th Report, p. 193.]

A.D. 1806, October 7.—N° 2973.

SUTTON, Ralph.—Apparatus for cooking either by steam or "water."

On the top of a boiler are fitted a convenient number of pots or kettles, each of which communicates, by means of a pipe, with the boiler. Food placed in these vessels may accordingly be either steamed or, by putting water into the vessels, boiled. Cocks are provided to regulate the flow of steam, so that all or any of the vessels may be used at once. A reservoir above the boiler supplies it with water. The cooking vessels may be secured in their places by any suitable means.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 7th Report, p. 193.]

A.D. 1806, October 30.—N° 2982.

PROSSER, John.—"Improvements upon smoke or air jacks."

"The first improvement consists in making the box, case, or "body of the single smoke or air jack to extend the whole length "from or near the center of the inside of the chimney to the "outside or breast thereof, and inclosing the spindle, and termi-"nating at or near the chain wheel."

"The second improvement consists in raising the said spindle "and chain wheel in a slanting direction above the center of the "worm, by which the oil flows above the top carriage of the worm "without the assistance of pipes or tubes, the box, case, or body "being one intire piece, except the top, which is screwed or

" fastened on to remove at pleasure, continued from or near the " center of the flue to the outside of the breast of the chimney, " by which the oil put in the box, case, or body next the chain " wheel runs down and incloses the whole work."

"The third improvement consists in making the chain wheel " of brass or iron instead of wood, and of placing in the groove " or space in which the chain or chains runs or run, tags and " holes, thereby effectually preventing the chain or chains from " slipping."

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 11 (*second series*), p. 161; Rolls Chapel Reports, 7th Report, p. 192.]

A.D. 1807, October 19.—N° 3075.

SHORTER, Edward.—"Jack for roasting meat."

Instead of "pullies and weights" "a spring in a barrel" with a fusee is used. Instead of cog-wheels, wheels working by friction are used. They may be faced with buff leather or other rough material. The axle of any of the wheels may work in a slot, and pressure from a weight be employed to keep the wheels in contact.

[Printed, 4*d*. No Drawings. See Rolls Chapel Reports, 7th Report, p. 198.]

A.D. 1809, January 23.—N° 3195.

WHITFIELD, Samuel.—Making ears and handles for culinary vessels.

Handles of various sorts are shown in the drawing. They are cut out, pierced, and annealed. If a "rule joint" is required, the rivet is placed through the holes in the blanks, and they are pressed between dies. The handles, etc. may be made of various metals and tinned or japanned.

[Printed, 6*d*. Drawing.]

A.D. 1809, April 29.—N° 3231.

TREVITHICK, Richard, and DICKINSON, Robert.—" Naval architecture."

Most of the improvements relate to shipbuilding, but one part of the specification refers to a cooking apparatus. In the upper part of the boiler of a ship's engine, the inventors "insert or fix a vessel, " either single or divided into compartments, for boiling provi- " sions in water, or cooking the same in steam; and in the part " of the said boiler opposite the fireplace" they "insert or fix an " oven surrounded by a space communicating with the chimney,

" so that the walls of the said oven shall be surrounded by heated " air, and not in contact with the water." A condensing apparatus for providing fresh water may also be added.

[Printed, 4*d*. No Drawings. See Rolls Chapel Reports, 7th Report, p. 204.]

A.D. 1810, February 1.—N° 3298.

CRAIGIE, John.—(*Partly a communication.*)—" Kitchen fire- " place."

An iron pan is fixed on brick supports. It is to be filled with sand, for a sand-bath. A plate extends from its bottom to form a hot-plate. The whole is heated by a fire below. In front of the fire are doors. Roasting may be carried on " in front, even " with the doors shut." A flue with a damper in it passes up behind the sand-bath. Dimensions for the apparatus are given.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 17 (*second series*), p. 80; Rolls Chapel Reports, 7th Report, p. 207.]

A.D. 1810, May 15.—N° 3337.

COFFIN, Sir Isaac, Bart. — (*A communication.*) — " Perpetual " oven for baking all kinds of bread."

The oven is called " perpetual," " because the operation of " baking may be continued for any length of time uninter- " ruptedly."

It is preferably oblong. It is open at both ends, and is heated by two fires, the flues of which pass above and below it respectively. An endless band of wire cloth passes through the oven over rollers at the ends, and along below the oven. In the oven it is supported on friction rollers. The bread or biscuit is placed on this, and the cloth wound gradually through the oven, at such a rate as to allow the bread to be baked in its time of transit.

Or there may be a single flue passing along the back and end of the oven, and in this case the endless band must pass over instead of under the oven. Or, in small ovens, instead of an endless band, a wire frame-work may be used, which is pushed through the oven by hand.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 19 (*second series*), p. 70.]

A.D. 1810, July 18.—N° 3364.

DAY, Benjamin Ager.—" Improvements in the construction " of certain household utensils or articles of household furniture " called a toast stand (for the purpose of holding a plate before

" the fire), a hearth brush or dust brush, and toasting fork, and " occasionally in combining or uniting the said brush and toasting " fork in one utensil or article."

The "toast stand" consists of a circular rim supported by three arms meeting in a centre piece. To the bottom of the centre piece is attached a clamp, worked by a screw. By this means the stand may be attached to the fender.

The toasting fork may be contained in the handle of the brush, and so arranged as to lengthen it. The tines of the fork spring, so that they may enter the brush handle.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 7th Report, p. 206.]

A.D. 1811, March 4.—N° 3401.

SAVAGE, EDWARD.—" Machine for washing and bleaching of " linen and other articles, and for cooking."

Above the fire is the boiler, which has a float with wire attached, to show the depth of water therein. Beside the boiler is the oven; there may be two ovens. A pipe passes through the boiler to carry air to the oven, and the air passes out at the other side. Steamers are placed above the ovens. Valves admit the steam into them, and other valves let the water or superfluous steam pass to a condenser or elsewhere. The roaster is on one side of the fire, and the hot closet on the other. For use on board ship or elsewhere, if the apparatus is portable, an iron frame for the whole may be used. In other cases it may be mounted in brick.

[Printed, 8*d*. Drawing. See Rolls Chapel Reports, 7th Report, p. 111.]

A.D. 1811, April 1.—N° 3427.

DEAKIN, THOMAS.—" Kitchen range and stoves."

The boiler and oven are in their usual places beside the fire, and the boiler has an aperture at top for admitting steam to a vessel for cooking. Behind the grate is a hot-plate. A flue passes up directly behind the grate, and there are two others behind the oven and boiler. A register above regulates these, so that when the centre flue is opened the side flues are closed, and vice versa. The register has an index outside, to show the state of the draught.

The oven and boiler are placed a little below the usual level, so that their tops are at the same height as the top of the fire. A moveable bar may be added to heighten the grate.

[Printed, 6*d*. Drawing.]

A.D. 1811, May 7.—Nº 3444.

BALL, John.—"Improved cooking stove."

The stove is composed of a square iron case. At one end is the fire-place, behind it is an oven. The flues are constructed to pass over the top of the oven, down its back, and along its bottom, but, by means of dampers, the hot air, etc. may be caused to pass into the main flue without passing about the oven, as described. On one side is the oven door, on the other the spits which pass into the oven. The oven may be used for baking and roasting at the same time. The inner ends of the spits rest on a rack within the oven. There is a lid above the fire which may be taken off. The parts of the furnace are all moveable, and the manner of fitting them together is described.

[Printed, 10*d*. Drawings. See Rolls Chapel Reports, 8th Report, p. 86.]

A.D. 1811, August 7.—Nº 3477.

DAVIS, William.—"Machine for chopping meat for sausages."

A series of knives or choppers is fixed to a frame, so as to be capable of sliding in a vertical direction. Motion is given them by means of a connecting rod from a crank on the axle of a fly-wheel, which is turned by hand. A board is placed underneath the choppers for them to act upon, and this board receives a to-and-fro horizontal motion, by means of a rack and pinion driven by a train of gearing from the fly-wheel. The knives are arranged in two rows, inclined in different directions.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 37 (*second series*), p. 199; Rolls Chapel Reports, 8th Report, p. 85.]

A.D. 1811, November 23.—Nº 3508.

BAKER, Joseph.—"Improved method, by means of machinery, " of kneading dough."

"The principle" of the invention "is to amalgamate flour or " meal or pulse of any kind with water in a circular trough " having an upright shaft turning on a pivot fixed in the " centre of the machine, so that the dough placed in such trough " may be kneaded by a stone or iron roller on its edge passing " over it in a rotary motion, being fixed at a due distance by " an horizontal bar or axle to the shaft, which is to be turned " by means of one or more other horizontal bars likewise " fixed thereto, and worked like a capstan by a proportionate

" number of bipeds or quadrupeds, such horizontal bars having
" small shares fixed to them so as to run in the trough, and
" acting like a plough, cause the dough to present fresh surfaces
" for each successive revolution. This kneading machine may
" be made in metal of any kind, or their compositions or combi-
" nations; perhaps the preferable way would be to make the
" foundation of brick or stone, to make the trough of stone or
" iron, to make the upright shaft of wood crampt with iron,
" and the steps in which the iron pivots are to run of flint or
" metal, and the shares of iron."

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 20 (*second series*), p. 204; Rolls Chapel Reports, 8th Report, p. 91.]

A.D. 1812, March 5.—N° 3546.

MATHEW, FELTON.—"Improvement in the manufacture of " yeast."

The fresh yeast is put into bags. These bags are put into presses under which are troughs. The bottoms of the presses are grooved. They are arranged close together, with partitions between. A lever is arranged in each press so as to press a board on the bags. The lever has hooks, upon which weights are hung to depress it. After the first pressing the bags are taken out, and two placed in each press with a board between. Next the bags are placed in iron cisterns, and pressed by a screw press. The remaining beer runs into a trough below the cisterns. The bags are then emptied out on a board, and the yeast broken up with shovels. It is next placed on frames of canvas in a drying house, through which pass flues from a furnace. It is then sifted, the coarser parts ground, and the whole placed in casks for storage. For use, the powder is mixed with "weak wort lukewarm."

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 22 (*second series*), p. 193; Rolls Chapel Reports, 8th Report, p. 89.]

A.D. 1812, April 15.—N° 3554.

ASHLEY, JOHN.—" Horizontal and vertical moving roaster."

The apparatus consists "of a frame made of iron or other hard
" metal, in form either angular or circular, having two spindles
" which are turned in a vertical direction by the power of a smoke
" pulley or spring jack communicated by a chain or spring to the
" spindle wheel, the said frame having a hand or index with four

" fingers or points fixed on a pin or shank movable in a hole or eye
" in the frame. One end of the spindle or axis turns and bears
" on the bottom part of a stay, the said stay being placed on a
" rack. The hand in its course with the frame meets the upper
" end of the stay, and turns in a horizontal direction every time
" the frame makes its rotative circle, and the fingers passing the
" stay are stayed one at a time by a spring catch moving on a
" pin attached to the frame, whereby a spit, or cradle and spit
" in an inner frame placed to the said hand or index is prevented from moving irregular or retrograde. The opposite
" part of the spit, cradle, or inner frame turns on a point or pivot
" in the outer frame opposite the hand. The spit in the inner
" frame is placed lengthwise, by the blade point entering one
" side of the frame, and the handle or hilt end of the spit is
" fastened to the other side of the said frame by a screw pin,
" so as to be put on or off when wanted; or a spit may be put
" to the moveable hand, to turn in the outer frame, without the
" inner frame, the blade end entering the pin or shank of the
" moveable hand, and the opposite or handle end of the spit
" turning in the opposite part of the outer frame on a point or
" pivot turning in a screw socket, so as the spit may be put on
" or off when wanted by screwing or unscrewing the screw
" socket."

[Printed, 6*d.* Drawing. See Rolls Chapel Reports, 8th Report, p. 89.]

A.D. 1812, April 21.—N° 3556.

BLUNT, CHARLES FLY.—" Ships' fire hearths."

The fire is placed "in the hinder part of the machine," so as to remove it as far as possible from the ship's cables, and, if necessary, the boilers and the whole of the "hinder part, are
" curved, to economise space.

Above the grate is the boiler, and behind the grate, under the boiler, is the oven. Behind this again is the roaster, where there is a set of spits turned by a smoke jack in the chimney. There may be two boilers, side by side. The chimney passes up behind the boiler. Above the boiler is a distilling apparatus (described), and a great part of the specification is occupied with a description of worms and other appliances for distilling.

[Printed, 1*s.* 8*d.* Drawings. See Rolls Chapel Reports, 8th Report, p. 90.]

A.D. 1813, March 3.—N° 3653.

WHITE, John.—" Machine for cooking without wood or coal."

Water is heated in a small boiler by a lamp, and the steam is admitted to a chamber in which the food is cooked. A pipe " to " convey heat " also leads from the boiler, through the cooking vessel to a trivet above, on which may be placed a kettle or other vessel. By the side of the lamp is a box to hold the various utensils. The whole shuts into a square case.

A stove for heating a room is also shown.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 39 (*second series*), p. 7; Rolls Chapel Reports, 8th Report, p. 94.]

A.D. 1813, March 9.—N° 3661.

COOMBS, Benjamin Merriman.—" Apparatus for the cooking " or dressing of victuals."

There is a boiler on each side of the fire, and between one of these boilers and the grate is an oven. One cheek is made fast to part of the front of the grate, and this part with the cheek, slides backwards and forwards to vary the size of the fire. The boiler farthest from the fire " is of a form different from any in " use hitherto; the front and back recede inward, each at a right " angle, a few inches before they come to the bottom, and then " descend at a right angle to the bottom, leaving a recess behind " and in front for the heated current to pass by the one and " return by the other; and on the side next the fire there is " a projecting prism or cylinder," " which is allowed to touch " the oven." The other boiler also has similar recesses, and may have a similar " prism." Or the boiler may be attached to the moveable cheek, and move with it. The oven door may be divided into two.

A cinder sifter is used. A sloping sieve is placed under the grade, so that the ashes fall through to one side, and the cinders remain in the other. A fire guard, made of bars, and shutting up, may be used. There may be a boiler placed " partly over the " oven," and it may have recesses in which pots or vessels fit for cooking. This is specially useful in ships' cooking hearths. The top plate may slide, and may have projections which enter the fire, cast or otherwise fixed on it. The oven may be moveable, and pass under the boiler, to enlarge the grate. In ships' hearths, the fire is placed at the end, and the boilers " nest into one

" another." The apparatus may be portable and mounted on wheels.

In a modification the boiler is moveable, and "a heater stove or " stewing stove or pan" may take its place.

A spit is described. Two or more hooks are pivotted to one another, so that they can be set at various angles. They are telescopic, and can be fixed in position by a screw. The apparatus may thus be made to hold within it the joint to be roasted. It may be variously modified.

A damper, consisting of a slide, or a plate pivotted in the chimney, is described.

[Printed, 8*d*. Drawing.]

A.D. 1813, April 28.—Nº 3687.

WHITFIELD, Samuel.—" Furniture applicable to culinary and " other utensils."

Handles and "ears" for vessels of different sorts are shown in the drawing. A "pot ear" may have "a stop or rest for " the beal," "having a vertical support." The ears may have " rule joints."

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 98.]

A.D. 1814, February 12.—Nº 3782.

PRICE, Richard.—" Improved cooking apparatus."

The front and back are formed of two cast-iron plates. The fire-place is in the middle, with the oven and the boiler at the sides. The top is double, so as to leave a space over the oven and boiler in which hot air, etc. can circulate. Thence it passes down the back and to the flues, of which there are three, one at each end, and one in the middle; each flue is provided with a damper, so that either oven or boiler can be heated separately. A small door admits air into the boiler, if it is wished to keep the water from boiling. A steamer is placed above the boiler, or the steam may be conveyed to separate vessels. Roasting may be performed in the oven or before the fire.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 198.]

A.D. 1815, March 7.—Nº 3890.

DEAKIN, Thomas.—" Portable kitchen."

At the top is a boiler in which steamers containing food to be cooked may be placed. Below this is an oven, and below this again a second oven. The fire is in front of the ovens, and the flue passes between the boiler and the upper oven. The fire-place has two doors, one above and one below the fire. The whole apparatus except the boiler is of iron. The boiler is of "brass, "copper, or tin plates."

[Printed, 6*d*. Drawing.]

A.D. 1815, April 8.—N° 3905.

LOSH, William.—"Furnaces for heating ovens and boilers."

The object of the improvements, so far as they concern this series, is to supply a means of heating ovens quickly and economically. The fire is placed on a grate at the bottom of the oven, and the products of combustion allowed to circulate through it. No air is permitted to enter the oven except what passes through the fire-grate. When the oven has been heated, the fire is withdrawn, the door of the passage leading to the fire below closed, and "the remainder of the process of baking is managed as "usual." A vaulted oven is figured. In the centre of the flue is a grate with ash-pit and air-passage below; at one side of the oven is a flue, with doors to connect or disconnect it with the oven and the external air.

The boilers referred to in the title are engine boilers.

[Printed, 1*s*. 4*d*. Drawings. See Repertory of Arts, vol. 28 (*second series*), p. 74; Register of Arts and Sciences, vol. 3 (*new series*), p. 238; Engineers' and Mechanics' Encyclopædia, vol. 1, p. 577; Rolls Chapel Reports, 8th Report, p. 109.]

A.D. 1815, June 24.—N° 3935. (* *)

BALDEN, Samuel, and BURTENSHAW, John.—"A machine "or instrument for the better heating ovens."

This consists of a circular metal grate which fits close in an aperture formed in the bottom of the oven, and can be raised into the oven or lowered into a vault below by means of a convenient lever; when the fire has been lighted in this grate it is raised into the oven, and the oven becomes heated; it is then lowered down and the orifice covered over with a plate; no air is allowed to enter the oven except through the fire.

[Printed, 6*d*. Drawing.]

A.D. 1815, July 18.—N° 3940.

COLDRIDGE, Charles.—"Improved grate."

The patentee thus describes his invention:—

"First, I do so construct and dispose one, two, or more top "doors, shutters, or covers, that they may apply to the upper

" part of the fire-place, either separately or together, and enclose
" it either in the whole extent of its length or in part, as may be
" required; and I do also so construct and dispose one, two, or
" more front doors, shutters, or flaps, that they may apply to the
" front part of the fire-place either separately or together, and enclose
" it either in the whole extent or in part, as may be required.
" And I declare, I apply these aforesaid doors, shutters, flaps, or
" covers respectively to the front and to the top of the fire-place
" for the purpose, and having for my object in so doing, first, the
" transforming the kitchen grate (or such part of it which by
" means of the said separate doors, shutters, flaps, or covers may
" be enclosed), into a perfect stove, at the pleasure of the operator;
" and secondly, to use the aforesaid front, doors, shutters,
" flaps, or covers when let down to an horizontal position, and
" there supported, for the purposes of dripping pan, stand, or
" footman. I further declare that I do so form and construct,
" and do dispose and place upon or about my said kitchen grate
" and apparatus, a boiling vessel, fountain, and cistern or cisterns,
" as that the water it contains may be kept constantly heated,
" whether the apparatus be used as a stove or a common kitchen
" grate; and that I do place it in such a part of the apparatus
" that it requires no additional length or depth to that which the
" apparatus occupies without it."

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 106.]

A.D. 1815, December 5.—N° 3963.

CHABANNES, JEAN FREDERIC, Marquis de.—"Ventilating and heating."

A current of air in chimneys is produced by an air-pump. Ovens may be heated by "surrounding them with flues acted upon by "the said apparatus." The smoke may be drawn through water, in which the sooty particles will be deposited. No further description of the apparatus or of the manner of its application to ovens is given.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 28 (*second series*), p. 321; Rolls Chapel Reports, 7th Report, p. 116.]

A.D. 1816, July 2.—N° 4044.

BARLOW, JOHN.—"Improved cooking apparatus."

A kitchen range is described, and the claim is apparently the general arrangement of parts, none of which are specially novel.

The fire-place occupies the usual place between the boiler and oven. The oven is a "poker oven," that is, it has an iron projection cast on one side, and standing out into the fire, or, if the oven is large, two such projections may be made on it. It is of cast iron. Close to the side near the fire is a perforated wrought-iron plate for diffusing the heat. On it is fixed a rack to carry spits. On the top of the boiler is a wrought-iron plate. The boiler passes round to the back of the fire. Part of the boiler cover may form a hot plate, to be heated by the boiler or by a separate fire. A flue may be made behind the boiler, and have a damper in it.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 29 (*second series*), p. 268.]

A.D. 1816, August 14.—N° 4055.

BRIGGS, Edward.—"Improvements in or on the machinery "used in the making or manufacturing of pans and stails."

[No Specification enrolled.]

A.D. 1817, March 11.—N° 4108.

RAYBOULD, William.—"Improvement applicable to fire-"stoves, grates, and ranges."

The oven and boiler are in their usual position. The boiler has two concentric apertures with covers, the smaller for filling the boiler, and the larger for admitting a vessel for steaming. The back of the range above the grate is made with sloping wings, and works backward or forward upon castors. Below the oven and boiler are separate small grates for heating them. Below the grate is a range of inclined bars, for sifting the cinders. The whole grate is mounted on castors, so as to be moveable in and out. The sliding back is worked by a screw or otherwise. The remaining details of the grate shown are the same as usual.

[Printed, 6*d*. No Drawings.]

A.D. 1817, August 5.—N° 4147.

STRATTON, George.—"Improvements in fire-places."

The improvement, so far as relates to this series, consists in the use of a secondary or additional flue passing through the side or "cheek" of the grate and about the oven or boiler, and then to the chimney. A damper in this flue regulates the draught.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 121.]

A.D. 1817, August 12.—N° 4159.

BIGGS, Edward.—" Improvements in the method of making of " manufacturing pans and stails."

The pans intended are frying-pans and warming-pans. For frying-pans a blank of metal is cut out to form the pan. It is then stamped to the proper shape between dies. The pan so formed is scoured with gravel in a barrel of water, and pickled in vitriol. It is then finished in a lathe. The bands are made separate, stamped, and rivetted to the pans. The warming-pans are made in a similar way, and tea-kettles also.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 120.]

A.D. 1818, January 15.—N° 4201.

FRASER, James.—" Cooking machine for the more simple and " effectual decomposition of salt water."

The boiler surrounds the fire-place on every side but one, the front, where cooking may be carried on. The flue passes through the middle of the boiler. At each side of the fire are smaller fires, and above these are ovens. The steam from the boiler passes into a chamber behind, within which are vessels for boiling in. These vessels absorb the heat from the steam, which is condensed and falls to the bottom as water. This water passes through a pipe and falls in a jet upon a stone plate; it is thus broken into spray, and through this spray a current of air is drawn. The current is caused by heat from the furnace. Instead of falling on stone the water may pass through a sieve. When there is no cooking going on the cooking vessels are to be filled with cold water; this, when warmed, may be used to replenish the water. The apparatus is specially adapted for ships.

[Printed, 1*s*. 8*d*. Drawings. See Rolls Chapel Reports, 8th Report, p. 122.]

A.D. 1819, November 4.—N° 4408.

HEARD, John.—" Improvements on cooking apparatus."

A portable stove is described, suitable for use on board ship and elsewhere. All the parts are made separate and fitted together. The external frame has four legs to raise it from the ground. A tray to form the bottom is slid into it. This tray has ledges upon which the oven is supported, the intermediate space being filled with sand. The oven is of such shape as to occupy the back and sides of the apparatus, and it surrounds the fire on three sides. The hot air, etc. is caused to circulate over the top of the oven, and underneath a top plate, in which are holes for saucepans, etc. When these are not in use the holes are covered with lids. There is a rack in front for the spit, and a drawer below for ashes.

[Printed, 8*d*. Drawing. See London Journal (*Newton's*), vol. 2, p. 110.]

A.D. 1820, April 29.—N° 4452.

COOK, Thomas.—" Apparatus for the purpose of cooking."

At one side of the fire is a roasting chamber, at the other a hot chamber. Both these are slightly below the level of the fire. Above each of these is a boiling chamber, and above each boiling chamber an oven. Over the front of the fire is an open space, and over the back of it a boiler. There are three flues; one passes under and behind the boiler, one over the roasting chamber and to the boiling chamber, etc. above it, on both sides of which it passes, and the third in a similar manner over the hot chamber, and about the boiling chamber over it. At the bottom of one of the boiling chambers is an opening with a lid, at which a vessel may be boiled more quickly than in the chamber.

[Printed, 10*d*. Drawing. See London Journal (*Newton's*), vol. 1, p. 419.]

A.D. 1820, November 1.—N° 4506.

LOBECK, Henry Lewis.—(*A communication.*)—" Making " yeast."

[No Specification enrolled.]

A.D. 1821, February 3.—N° 4533.

LONDON, Phillips, the younger.—" Improvements in the " application of heat to coppers and other utensils."

[No Specification enrolled.]

A.D. 1821, May 9.—N° 4561.

ECKSTEIN, George Frederick.—" Improvements in cooking " apparatus."

The whole apparatus folds up into a box. The sides of this box open out and have legs screwed to them to form a dining table. The top has legs to form a stand for the apparatus. The stove may burn charcoal or coal. In front of it is an enclosed space for roasting in on a spit or by a chain. The jack is placed outside. Above the fire are vessels for boiling, or "stewing "stoves" let into apertures in the top.

[Printed, 6*d.* Drawing. See London Journal (*Newton's*), vol. 4, p. 1.]

A.D. 1821, August 4.—N° 4579.

SLATER, JOHN.—"Kitchen range and apparatus for cooking."

The bars are of cast or wrought iron and the sides of cast iron. There are "a moveable keeper and spit racks." The boiler is behind, and a flue passes through it. Above the boiler is a steam chamber connected with it by pipes. A steam pipe also passes from the boiler to hot closets, etc. Another pipe carries steam to a condenser. A "separate fire-place with a stew hearth and "baking oven or roaster" is fixed at a part of the range, or two such fire-places may be employed. This "stew hearth and fire-"place" is made of a square frame with ledges to support plates, and with the fire below. The oven has flues all round it and the chimney above. Hot air is admitted into the oven, and passes out by openings to the flue. This oven is fixed "at the top or "back part of the stew hearth." At the other side is a boiler with compartments, in the top one of which kettles may be fixed. Steam may be admitted to these kettles.

[Printed, 8*d.* Drawing. See Repertory of Arts, vol. 7 (*third series*), p. 52; London Journal (*Newton's*), vol. 3, p. 231.]

A.D. 1821, August 23.—N° 4585.

LANE, WILLIAM. — "Improvements on horizontal roasting "jacks."

These improvements consist "in uniting the action of several "spring barrels together, by means of which connection the power "of the springs are collectively applied to produce the movement. "On the external part of each barrel (or cylinder containing a "spring) a rim of teeth or cogs is fixed, or a toothed wheel is at-"tached to each barrel. These cogs or toothed wheels turning "into each other, form a connection or train by which the power "of the respective springs are combined, and then united force "applied to produce the revolving movement."

[Printed, 6*d.* Drawing. See London Journal (*Newton's*), vol. 2, p. 430.]

A.D. 1822, June 26.—N° 4687.

POSTANS, THOMAS, and JEAKES, WILLIAM.—"Improve-" ment on cooking apparatus."

A cover is made to fit over the hot-plate. Within this cover are holes in which saucepans, etc. may fit. The frame rests on firestone partitions, above each of which, and between it and the frame, is a layer of non-conducting material. The object of this is to prevent the heat of the hot-plate from escaping.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 4, p. 243.]

A.D. 1822, July 29.—N° 4693.

PEARSE, JOHN.—"Improvements in the construction and manu-" facture of spring jacks, and their connection with roasting appa-" ratus."

A spring barrel communicates motion by means of gearing to a cog-wheel on a horizontal spit. There is no fusee, but the barrel has a rim of teeth on it taking into a pinion. A fly-wheel regulates the motion of the apparatus.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 5, p. 184.]

A.D. 1822, September 27.—N° 4706.

MOXON, JOHN DOWELL, and FRASER, JAMES.—"Improve-" ments in ships' cabooses or hearths."

The fire-place is open at top and has a lid to cover it. Behind and below the fire is an oven, the side of which next the fire is double, so that there is an open space. This space has air admitted into it from below, and the air enters the oven near the top. A pipe at the back allows the steam, etc. to escape. Above the oven is the boiler, and the flue passes between the oven and boiler and up the back of the boiler. It may also be led by the side of the boiler to the front. The boiler is double, and each part contains a vessel for steaming or boiling in; the cover has a flange which overlaps into a gutter filled with water, round the edge of the boiler, so as to make an air-tight joint. The steam from the boiler passes to a condensing apparatus (described). Two of these cooking apparatus may be used with one condenser.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 45 (*second series*), p. 268; also vol. 9 (*third series*), p. 57; London Journal (*Newton's*), vol. 7, p. 248; Carpmael's Reports on Patent Cases, vol. 1, p. 491.]

A.D. 1822, December 26.—N° 4744.

RICHARDS, GEORGE.—"Improvements in grates, stoves, "furnaces, and other inventions for the consumption of fuel."

The only part specially connected with the present series is described as follows:—"I also make kitchen ranges or cooking "apparatus with a sliding oven, boiler, or hot closet to regulate "the length of the fire, and which are to be either heated from the "kitchen fire or from separate fire-places, to have no fall-down "bar; but when the fire is to be brought to its smallest standard, "to be reduced in height by a moving or sliding bottom, which "sliding bottom I make, to reduce the fire-places of all grates "and stoves, to have an atmospheric vent in the back, where no "oven, hot closet, or boiler is made to slide. The vertical ranges "may be made with sliding cheeks on a new principle, the top "of the boiler and oven to serve at hot plates, and a plate also to "slide, or hang, or turn down over the fire-place, as a hot plate "with different culinary conveniences for boiling, stewing, and "steaming; in the back part, spit hooks to be regulated to suit "the different joints or meat to be roasted, with slides, screws, "springs, or studs. I also make concave metallic roasting "fasteners on an entire new principle, so as they may be connected "with the grates, and be put in their position and removed out "of it to allow the dripping of the meat with the greatest facility "and adroitness. I also make the fenders to the ranges, to be "secured to the inner hearths with slides, studs, screws, or springs. "I also make the toasting racks to be formed with swing brackets. "I also make the whole of the kitchen apparatus for cooking and "vertical ranges, &c, with or without the metallic fire-place, or "metallic inner and outer hearths." The bottom bars may be made curved, to prevent the grate sinking from the effect of contraction and expansion.

[Printed, 4*d*. No Drawings. See London Journal (*Newton's*), vol. 6, p. 191.]

A.D. 1825, February 1.—N° 5087.

THIN, JOHN.—"New method of constructing a roasting jack."

A wheel with floats or vanes, like a paddle-wheel, is mounted on a horizontal spindle in a chimney. Half its circumference is covered by a box, so that only the other half is subjected to the action of the current of air, and it is consequently revolved. The motion is communicated by gearing to a shaft outside the chimney, and from it by an endless band to a spit, either vertical or horizontal. The apparatus may be mounted in a box hinged to the wall of the chimney, so that it may be moved for sweeping.

[Printed, 8*d*. Drawing. See London Journal (*Newton's*), vol. 13, p. 84; Register of Arts and Sciences, vol. 4, p. 454; Rolls Chapel Reports, 7th Report, p. 125.]

A.D. 1825, June 18.—N° 5190.

ATKINS, George, and MARRIOTT, Henry.—"Improvements on and additions to stoves and grates."

The principal improvement consists in the adaptation of a chamber behind the fire in which coal to replenish the fire is placed. The heat acting on this coal extracts the gaseous portions, and these pass through the incandescent fuel, so that the smoke is consumed. The bottoms of stoves, etc. may be made partly of non-conducting materials, to retain the heat.

An oven is also described. It is placed above the fire, and in front of the register. At its sides are passages to the flue, and by means of dampers the products of combustion may be allowed to pass either through the register, or along the sides of the oven. Hot closets are made at the side of the oven. The oven is thickly lined with fire-clay. A "blower" may be placed over the space between the bottom of the oven and the top of the fire.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 2 (*third series*), p. 8; London Journal (*Newton's*), vol. 11, p. 73; Register of Arts and Sciences, vol. 3, p. 209 and 230; Engineers' and Mechanics' Encyclopædia, vol. 1, p. 532.]

A.D. 1825, November 8.—N° 5283.

COCHRANE, William Erskine.—"Cooking apparatus."

A small oven or roaster is used, outside which is a metal case of corresponding shape, leaving a space between the oven and the case. Through this space the flame and heat from a lamp passes, and above is a flue. There are apertures to produce a draught in the oven, and it is fitted with shelves. Various sorts of lamps may be used, but one with an argand burner (gas or oil) is preferred. The oven may be mounted on four legs, and the lamp may be swung underneath. A lamp with a cotton wick, a regulating screw to raise and lower the wick, and a saucer-like receptacle for the material to be burnt (oil, tallow, etc.), is described. The apparatus is adapted for use on board ship.

[Printed, 10*d*. Drawings. See Repertory of Arts, vol. 3 (*third series*), p. 121; London Journal (*Newton's*), vol. 14, p. 150.]

A.D. 1826, January 19.—Nº 5321.

WHITFIELD, WILLIAM.—Handles for saucepans, etc.

A "mould" about the shape of the article is forged. This is stamped between dies, and the resulting "web" removed with a "file, or a fly or piercing press." The stamping is effected while the iron is red hot or at "nearly white heat." After one stamping the article is cleared from scale or dross, and again stamped.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 14, p. 37.]

A.D. 1826, April 18.—Nº 5346.

BELLINGHAM, JOHN.—"Improvements in the construction "of cooking apparatus."

The fire has on one side of it an oven, on the other a roasting oven. Behind and above it is the boiler, which has a "trunk" projecting into the fire-place. The flue divides, and passes right and left. In the drawing the right hand part passes over the "roaster," outside it, below it, and along the bottom of the grate to the left hand side, when it joins the other flue which has passed over the oven. The flue then passes beneath a hot closet to the chimney at the extreme left. The boiler has a steam pipe and a float which actuates a tap for feeding. A pipe carries the vapour from the roaster to the chimney. There are dampers to regulate the draught of the flues.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 3 (*third series*), p. 426; London Journal (*Newton's*), vol. 14, p. 257.]

A D. 1826, April 27.—Nº 5352.

WILLIAMS, JOHN.—"Ships' hearths, and apparatus for cooking "by steam."

The oven or roaster is behind the fire, and between it and the fire is an air passage. From this air passes to the oven, and escapes behind into the flue. At the top is the boiler, and the flue passes between it and the oven. Below the oven is a passage from the fire, and by means of dampers the heat may be directed through this or the upper passage as required. In the upper part of the boiler are the usual stands for cooking and steaming vessels, and the boiler may be connected to a distilling apparatus. The oven door opens downwards, and has a "swivel leg" to support it when open. The two top bars let down; the top bar is held in place by a catch, and when this is withdrawn it falls on to a catch; either the first or the first two may thus be let down, and when the second is down, the first may fall perpendicularly. To effect this, it is made to slide slightly, and pass over the supporting catch.

[Printed, 10*d*. Drawings. See London Journal (*Newton's*), vol. 14, p. 359.]

A.D. 1827, July 12.—N° 5523.

VAZIE, ROBERT.—"Preparing, extracting and preserving "food."

A "steam stove" is described. It consists of a vessel or boiler, within which is placed another vessel, so as to leave space all round, except at the points where it is supported, between it and the exterior vessel. Either or both vessels may be used with or without a cover. The apparatus may be placed in an oven or on a fire.

Various other methods of preserving food not connected with this series are described.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 7 (*third series*), p. 47; London Journal (*Newton's*), vol. 3 (*second series*), pp. 193 and 265; Register of Arts and Sciences, vol. 2 (*new series*), p. 211.]

A.D. 1828, January 15.—N° 5608.

COCHRANE, WILLIAM ERSKINE.—"Apparatus for cooking."

Two apparatus for cooking by a lamp are described; they are intended for use on shipboard and elsewhere.

The first is for boiling. A boiler is mounted on a stand over a lamp, and its flue divides, passes up through the boiler and again unites into a chimney in the middle of the boiler. A steam pipe leads from the top of the boiler to the bottom of a steam chamber, when the steam is discharged under a false bottom. This chamber is used for cooking, and is placed beside the lamp. The boiler has a hot water tap and a gauge tap, also a safety valve.

The second is for baking. An oven is mounted in a similar way to the boiler, except that there is no flue to the lamp. The heated air escapes round the bottom of the oven. The oven has a lid at top, and may be used for stewing, etc., as well as baking. The oven has a ventilator for roasting.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 8 (*third series*), p. 221; London Journal (*Newton's*), vol. 7 (*second series*), p. 283.]

A.D. 1829, June 19.—N° 5804.

POOLE Moses.—(*A communication.*)—"Improved machinery "for preparing or kneading dough."

Three different machines are described.

In the first, the kneading trough has a concave bottom. In it is mounted a roller, adjustable as to its height from the bottom. This roller receives motion through gearing from a fly-wheel turned by hand or otherwise. Above the roller is a scraper, to clear it from dough. The action of the roller carries the dough to one side of it, and the direction of its motion then requires to be reversed.

In the second machine the trough is a long oblong box, mounted on trunnions and revolved by a wheel. It is divided by partitions across its length. In each partition is a heavy ball fastened by a chain. The dough is kneaded by the action of these balls as the trough revolves.

In the third machine a series of elliptical boards are mounted obliquely on an axle which revolves within the kneading trough. These act on the dough as the axle is revolved by a fly-wheel. The axle etc. may be raised out of the trough by means of a rack and pinion.

[Printed, 1*s.* 10*d.* Drawing. See London Journal (*Newton's*), vol. 9 (*second series*), p. 129; Register of Arts and Sciences, vol. 4 (*new series*), p. 166.]

A.D. 1829, September 9.—N° 5841.

FONZI, Joseph Ange.—"Improvements on or in addition to "fire-places."

The object of the improvements is to construct a stove that will burn fuel from above downwards. The fire is contained in a square box open at top, and having a passage below which leads to a flue. Above and behind this fire-place is the boiler, and through it the flue passes, coming out at the top. Above the boiler is an oven, through which also the flue passes. This oven has "another smaller oven withinside of it, in the manner of a "drawer." A plate surrounds the top of the fire plate, upon which cooking vessels may stand. The boiler may if needful be omitted. Two of these apparatus may be placed side by side, and have a common boiler. Minute directions are given for the construction and management of the apparatus.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 9 (*third series*), p. 231; and vol. 11 (*third series*), p. 72; London Journal (*Newton's*), vol. 5 (*second series*), p. 199; Register of Arts and Sciences, vol. 4 (*new series*), p. 259.]

A.D. 1830, March 20.—Nº 5921.

COCHRANE, William Erskine.—" Improvements on his " patent cooking apparatus."

Improvements on No. 5608. The two apparatus described in that Specification are amalgamated into one. The boiler is of such shape as to surround the base of the oven, and is annular, so as to allow the flame of the lamp to play on the bottom of the oven. A space is left between the oven and the boiler, through which the hot air etc., passes. The other arrangements are the same as in the former patent.

[Printed, 10*d*. Drawing. See London Journal (*Newton's*), vol. 4 (*conjoined series*), p. 302; Register of Arts and Sciences, vol. 5 (*new series*), p. 163.]

A.D. 1830, April 24.—Nº 5928.

McINNES, John.—" The manufacture or preparation of certain " substances which I denominate 'the British tapioca,' and the " cakes and the flour to be made from the same."

The tapioca is to be made from potatoes, parsnips, beet or other tuberous roots. The roots are mashed to a pulp with water. The " mucilage or farine " is separated by sieves, washed and dried. It is then " gradually put through a common sieve into a broad " cast-iron pan placed on the fire." When it becomes " dry and " gritty," the manufacture is complete. To make cakes, " a " wooden frame of the size or shape the cakes are wished, is " placed on the pan before-mentioned, filled up with farine, " taking care that the pan is not too hot." The cakes last for years. The flour may be mixed with wheat flour, and used for general purposes.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 11 (*third series*), p. 24; London Journal (*Newton's*), vol. 8 (*second series*), p. 28; Register of Arts and Sciences, vol. 5 (*new series*), p. 193.]

A.D. 1830, June 29.—Nº 5944.

HICKS, Robert.—" Machine to be applied to the purpose of " baking."

The oven is situated above the fire, and is made of iron. The fire may be in a moveable tray, and if the oven is very large, this tray may be caused to move round the edge of the oven by means of wheel-work. An iron plate is hung over the fire to protect the bottom of the oven. A pipe from the top of the oven collects the vapour from the dough. This vapour is led through the worm of a still, and so condensed; it may be afterwards rectified, and pure spirit obtained. A thermometer immersed in oil is fixed in the oven, and dampers in the flues regulate the heat. The oven has a brick floor. The flues pass up the sides of the oven and unite at the top.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 3 (*conjoined series*), p. 11; Mechanics' Magazine, vol. 14, p. 417; Young and Collyer's Reports, vol. 2, pp. 46 and 472; Register of Arts and Sciences, vol. 5 (*new series*), p. 263; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 232; Carpmael's Reports on Patent Cases, vol. 2, pp. 176 and 183; Billings on Patents, p. 138; Law Journal (*Exchequer in Equity*), vol. 5 (*new series*), p. 101; Webster's Reports, vol. 1, p. 295 (*note*); Webster's Patent Law, p. 137, case 124, and p. 138, case 132.]

A.D. 1830, August 31.—N° 5992.

CLAYTON, Edwin.—"Manufacturing dough or paste, for the "purpose of baking into bread."

The invention consists "in manufacturing dough in a revolving "barrel by means of an internal frame made to revolve in a contrary direction to the barrel."

The barrel is mounted on trunnions, and these are hollow, to contain the axle on which the frame is mounted. On turning a handle by means of gearing, motion in opposite directions is given to the barrel and frame.

In making dough, flour, water, and yeast are first mixed up into leaven, warm water and salt is then added, and the whole mixed, after this the flour and water for the dough are added, and the whole worked up.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 10 (*third series*), p. 336; also vol. 11 (*third series*), p. 266; London Journal (*Newton's*), vol. 7 (*second series*), p. 320, and vol. 7 (*conjoined series*), p. 201; Register of Arts and Sciences, vol. 5 (*new series*), p. 200; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 22.]

A.D. 1831, March 31.—N° 6102.

WALLACE, John.—"Improvements in the safety hearth."

The hearth is for ships' use. A smoke jack of the usual construction is fixed in the chimney. It communicates motion by pulleys and an endless band to a spit placed before the fire. Side plates come out by the side of the spit, and support it, and a front plate and top plate close in the whole space in front of the fire; below is a dripping pan. The oven is behind the fire, and the boilers above. Air is admitted to a chamber behind the fire to be heated, and thence it passes below and behind the oven. A damper regulates the draught. It may be fixed by a catch in any position. The whole hearth is mounted on a curved frame fitted with friction rollers, to allow the hearth to preserve an upright position when the ship is pitching.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 13 (*third series*), p. 78; also vol. 1 (*new series*), p. 354; London Journal (*Newton's*), vol. 8 (*conjoined series*), p. 406; Register of Arts and Sciences, vol. 6, p. 234.]

A.D. 1831, July 6.—N° 6130.

HICKS, Robert.—"Improvements in culinary apparatus."

In a recess, close to the chimney of the ordinary range, is a table fitted with stands and burners for gas jets. The burners are annular, and over each is suspended a conical "hood." Through the centre of the ring-burner passes an upright spit, so that meat on it is exposed to the action of the gas jets. The vapour passes up through the top of the "hood" to the chimney. For basting a small colander is fitted at the top of each hood, joined to which is a funnel, so that the gravy may be poured on it and sprinkled over the meat.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 13 (*third series*), p. 193; London Journal (*Newton's*), vol. 3 (*conjoined series*), p. 24; Mechanics' Magazine, vol. 18, pp. 296 and 333; also vol. 24, pp. 13, 80, and 122; Register of Arts and Sciences, vol. 7 (*new series*), p. 69.]

A.D. 1831, ... N° 6130.*

HICKS, Robert.—By a Disclaimer, bearing date June 16, A.D. 1837, George Henry Hicks, on behalf of the above Robert Hicks, disclaimed the words "conical" and "suspended" used in the Specification of Patent No. 6130, A.D. 1831, so that according to the altered sense of the description, the "hood" therein referred to may be of any shape, instead of being "conical" and may be fixed in any way, instead of being "suspended."

[Printed, 4*d*. No Drawings.]

A.D. 1831, October 14.—N° 6183.

COWDEROY, John.—"Apparatus to be used in the process "of making or manufacturing bread and biscuits."

The first machine described is for mixing the dough. A tank of "ferment" discharges into an inclined trough. The supply is regulated by a tap. Above this trough is a box of flour, with a perforated metal bottom, through which the flour is driven by a revolving cylindrical brush. A rack with vertical bars has a to-and-fro motion in the trough. The dough thus partly formed falls into a receptacle where a similar rack kneads it further. It is then brought by a pump or otherwise back to the "ferment" tub, and again passed through the apparatus, more flour being added, and falls into a receiving box mounted on wheels. There it is left to "rise." The various movements are given by suitable gearing.

The second machine is for the purpose of forming the loaves and conveying them to the oven. The dough is discharged into a press, which presses it down on to a tray traversing under the press. This tray receives an even layer of dough on its surface. It has round it a moveable cast-iron frame of the size and shape of the loaves to be made. A set of half the size of the finished loaf is then brought down on the dough, and pressed into it by a board placed on the top of the moulds. The frame is then pushed along a railway to a "turning frame," and turned over. A second set of moulds is now pressed down on the dough, so that they correspond with the first set, and both sets are removed, as well as the board by which they were pressed in. The stamped dough is now contained simply by the cast-iron frame surrounding it. A board is next placed on it, which board has a cloth doubled over a roller at one end. The frame is reversed in the "turning frame," so that the board and cloth are under the dough. The whole is run into the oven on a railway, and by winding the cloth on a roller it and the board are drawn from under the loaves, leaving them in the oven within the iron frame. To remove them, an iron plate, mounted on rollers having a feathered edge, is pushed under them, and they are drawn out upon it.

The press is worked by a rack and pinion, and the traversing table in the same way; the moulds are placed on by hand, and the frame pushed by hand along the railway.

[Printed, 1*s.* 6*d.* Drawing. See Repertory of Arts, vol. 13 (*third series*), p. 334; London Journal (*Newton's*), vol. 7 (*conjoined series*), p. 278; Register of Arts and Sciences, vol. 7 (*new series*), p. 139.]

A.D. 1832, April 13.—N° 6257.

CLARK, John James, NASH, John, and LONGBOTTOM, John.—Machinery for making articles of plastic material.

The machinery described is principally adapted for making bricks, tiles, and similar articles, but it may also be used for kneading dough and forming it into shape. A vertical shaft revolves within a cylinder. On the shaft are fitted broad blades, each of which carries three blades on its upper side. Below is a hopper in which the material is received when kneaded. This hopper is divided in two by a vertical partition. Moulds are fitted on the circumference of a pair of wheels, and these receive the kneaded material from the hopper. Pistons worked by an eccentric expel these moulds after they are filled; the moulds are then emptied by hand and replaced. Means for partly drying the material in the moulds is described, and also a method of moistening it, but these are inapplicable to the manufacture of dough, as are the other processes described.

[Printed, 1*s.* 4*d.* Drawings. See London Journal (*Newton's*), vol. 6 (*conjoined series*), p. 13; Mechanics' Magazine, vol. 28, p. 177; Engineers' and Mechanics' Encyclopædia, vol. 1, p. 259.]

A.D. 1832, July 19.—N° 6285.

HICKS, Robert.—"An improved method of and apparatus for "baking bread."

[No Specification enrolled.]

A.D. 1833, January 24.—N° 6370.

HEBERT, Luke.—"Improvements in machines or apparatus "for, and in the process of manufacturing bread."

The first part of the invention relates to the preparation of grain and meal.

The second refers to the preparation of dough for bread-making. Carbonic acid gas is generated in a suitable vessel, whence it passes into a receiver partly full of water. This water becomes saturated with the gas. Flour is placed in a cylinder capable of revolution. Through the trunnions on which the cylinder rests a pipe passes, and by the pipe the water containing the gas is admitted to the flour. This water serves instead of yeast. A scraper is fixed against the interior of the cylinder to ensure the proper mixing of the dough.

The next part of the invention refers to the baking of the bread. The dough is made into loaves, which are slid down an inclined table on to a platform. From this platform they are moved on to an iron plate which is run into the oven. The oven consists of a series of superimposed chambers with steam spaces between. Below is placed a boiler, in which the steam is generated. The steam not used for heating the oven may be employed to work an engine which drives the kneading machine and other mechanism. The delivery platform moves vertically, so that it can be brought to the mouth of each chamber in succession. The vapour from the bread may be employed "in making solu-" tions of bran and other vegetable substances."

The next part of the invention relates to the manufacture of sea biscuits. A vertical shaft works within a conical chamber. This shaft carries knives projecting horizontally, which work between fixed arms projecting from the sides of the chamber. Flour is introduced through a sieve above, and water is supplied in small jets that strike amidst the flour as it falls. The prepared dough is received at the bottom between endless bands working over rollers. By them it is led under rollers with suitable knives and points, which puncture it and divide it into square portions. It is next carried by an endless band to the oven. The bands are sprinkled with flour by rollers fed from hoppers, the superfluous flour being cleared away by scrapers. The oven is to be of the sort above described, with narrow partitions.

[Printed, 3*s*. 6*d*. Drawings. See London Journal (*Newton's*), vol. 11, (*conjoined series*), p. 274; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 22.]

A.D. 1833, February 21.—N° 6391.

HICKS, Robert.—" Apparatus for baking bread."

The apparatus or oven in which the bread is baked "consists of " a metallic vessel or steam boiler, which is much longer than it " is broad, and is flat at the bottom, with the sides straight. The " inside of this boiler is divided into compartments or tubes large " enough to admit loaves of bread into them. Spaces are left " open between the tubes, so that steam may freely circulate " around them. These tubes are supported at each end by the " fronts or facings of the boiler in which they rest, so that the " ends of the tubes are open, but the spaces at the ends of the " boiler between the tubes are closed up. There is a door at each " end of the oven, which, when open, admits loaves to be intro-" duced into the tubes. Water is introduced into the boiler by " means of a small forcing pump, or otherwise, and has at the " bottom of it water about half an inch in depth when used " upon the large scale, but when used upon the small scale the " quantity of water is not so material. A thermometer, and also

" a safety valve and guage cock, the last for the purpose of ascer-
" taining the quantity of water in the boiler. A fire is placed
" under the boiler in the usual manner; it converts the water
" into steam, which circulates among the tubes and heats them.
" The loaves are introduced into the tubes at each or either end
" of the apparatus, and then the doors are closed. The vapour
" from the bread escapes through a hole at both ends or either
" end of the oven. The temperature to which the oven is heated
" should be about 280° Fahrenheit's thermometer."

[Printed, 4*d.* No Drawings. See London Journal (*Newton's*), vol. 5 (*conjoined series*), p. 358.]

A.D. 1833, March 7.—N° 6396.

DON, Thomas.—(*Partly a communication.*)—" Improvements in
" machinery for the preparation of farinaceous substances, and
" in the processes of making bread."

The first part of the invention relates to apparatus for drying and grinding grain. Flour is distributed from a sieve upon table which reciprocates beneath it, water being at the same time sprinkled on it from a rose fixed below the sieve. When the table is covered, a series of rollers, some studded with projecting pins, some corrugated, and some plain, is let down on the dough, and the table traverses beneath them. The table may also be circular, and the rollers may radiate from the centre, so as to act on the dough as the table is revolved. When properly kneaded, the dough is removed to another bench, where it is rolled to an even thickness and stamped into loaves or biscuits by a " docker." The " docker " may have springs to press out the loaves, and pins to puncture the biscuits.

Ovens may be used which are heated by a steam pipe surrounding them or passing backwards and forwards along the floor. An oven constructed of many chambers arranged round a central point may be used. The flue passes round over the top of each.

[Printed, 1*s.* 10*d.* Drawing. See London Journal (*Newton's*), vol. 14 (*conjoined series*), p. 330.]

A.D. 1833, June 29.—N° 6445. (* *)

BANCKS, Christopher Piggott.—" An improvement in the
" manufacture of certain culinary and chemical utensils and
" vessels."

The vessels are composed of zinc, or zinc and tin alloy, with a thin outer casing of iron, copper, or hard alloy, which will withstand the action of fire. The thin outer case of iron, or copper, or alloy, is first formed by stamping or casting, or otherwise, and is tinned on its inner surface. A core is suspended inside the case, and into the space between the core and the case melted zinc, or alloy of ten parts zinc and one tin, is run; the zinc or alloy adheres to the tinned surface of the case, and when cold, is finished in the usual way.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 16 (*third series*), p. 267; London Journal (*Newton's*), vol. 3 (*conjoined series*), p. 99.]

A.D. 1834, February 15.—N° 6557.

GRIFFITHS, THOMAS.—"Manufacture of tea kettles and other, "articles then usually made of copper, copper tinned or plated "iron tinned, or any other metal or metals."

The invention relates to a method of stamping out various articles, among which are named saucepans and stew-pans, each from a single piece of rolled copper. A circular plate is cut out and stamped in a die of the usual description by a shallow male die over a deeper female one; successive dies of increasing size are used until the article has been brought to the proper size. The article is to be annealed several times during the stamping. It is then mounted on a wooden chuck covered with copper, and burnished by the application of a steel burnisher. The superfluous metal around the edge is cut off and the article is annealed. It may be thus subjected to successive burnishings and annealings. Full description is given of the requisite chucks and tools. The mouth is narrowed by pressure from the burnisher, or by being hammered in the usual way. The handle is to be applied in the usual way. Lids for saucepans, etc. may be made in the same manner as the bodies. Articles may be made in two parts and soldered together.

A Disclaimer and Memorandum of Alterations was filed by the patentee, May 12, A.D. 1846. The words in the title "or "plated," and "or any other metal or metals," were disclaimed. The words "other articles herein-after mentioned" and "other "articles," occurring in various parts of the Specification after the mention of "tea-kettles" are disclaimed. The use of other metal than copper or iron is disclaimed. In the title "certain" is inserted after "and," and "or iron plate" after "iron tinned." The use of an iron chuck instead of a wooden one coated with copper, is claimed, and a slight verbal alteration is made in a description given of the usual process of manufacture.

[Printed, 1*s.* 8*d.* Drawings. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 348.]

A.D. 1834, August 14.—Nº 6661.

BRUCE, William.—(*A communication.*)—"Apparatus for mak-"ing ships' and other biscuit or bread."

A machine for kneading dough is described. A circular table is revolved by a rack and pinion below. Above it are two conical rollers arranged radially, one plain, the other fluted, and two scrapers. The dough is placed on the table and subjected to the action of the rollers and scrapers in succession. The outer ends of the axles of the rollers are pressed down by weighted levers, so that the pressure on the rollers is adjustable. The dough when kneaded passes over an inclined plane to a machine for stamping out biscuits. A cylinder is fitted with cutting instruments of suitable shape and form for piercing the biscuits. The dough is led against it and portions stamped out of it and carried away by the cylinder, the other portions being driven off by springs. The stamped portions are carried round the cylinder and delivered on to an endless travelling band. They are pushed out of the stamps by a piston which strikes against a tappet within the cylinder.

[Printed, 1*s.* Drawing. See Repertory of Arts, vol. 4 (*new series*), p. 14; London Journal (*Newton's*), vol. 11 (*conjoined series*), p. 294.]

A.D. 1834, September 20.—Nº 6677.

WEEKS, Edward.—Kitchen ranges.

Several ranges of different sizes are described.—

In the first, the bars in front of the fire are hollow, and communicate with hot water cisterns at the sides. The tap for drawing off water is placed above the level of the top bar in the "cheek." Pipes from these cisterns also pass behind the fire. Within the cisterns may be cooking vessels. A "smoke board" is hung in front of the fire with ropes and weights "in the manner of a "window."

The second range resembles the first, but it has an oven which is "double-cased" and has an air space surrounding it. Below is a grate sliding on a drawer. From the air-space around the oven a flue proceeds to the chimney, and a smaller flue within this leads from the interior of the oven to carry off vapour from the meat.

The third range is larger. It is similar to the last named, but has a hot-plate on which iron pans and a kettle are placed; the pans contain water, and cooking vessels are placed inside them. Two doors slide in front of the fire. Over the range is a metal "canopy," at the top of which is an aperture through which steam escapes to the chimney. The bars of this and the next-described range "may be of solid metal, communicating their "heat to the water in the hollow end pieces or cheeks."

The fourth range is larger still. Pipes communicating with hot-water cisterns surround the fire on all sides but in front. The hot-plate has "longitudinal and transverse grooves" to allow for expansion; "for its contraction when cold, water is spilt "upon it." "In the grooves are fitted small fillets of iron" to prevent smoke escaping. There are partitions in the cisterns There may be a cistern in another room, supplied with hot water, so that cooking can be carried on in it. Any of the grates may have a false bottom, moved by a winch handle or otherwise.

[Printed, 8*d.* Drawing. See Repertory of Arts, vol. 5 (*new series*), p. 351; London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 445; Mechanics' Magazine, vol. 22, p. 321.]

A.D. 1834, December 23.—N° 6736.

STOTHERT, HENRY.—"Improvements in ships' hearths."

The object is to save the water resulting from the steam condensed in the process of cooking. The boiler is divided horizontally by a partition which may be double. Water is contained in the lower part and the cooking vessels are placed in the upper part. Steam is admitted by a passage leading from the centre of the partition between the cooking vessels to the top of the upper division. The condensed steam instead of falling back into the boiler is thus received on the horizontal partition. Thence it passes by a pipe to a refrigerator.

[Printed, 10*d.* Drawing. See London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 54.]

A.D. 1836, May 3.—N° 7076.

WHITING, JOHN.—"Improvements in preparing certain fari-"naceous foods."

The improvement relates to the lighter sorts of bread, biscuits, etc., and consists in the employment of muriatic acid and carbonate of soda. For every seven pounds of flour, 350 to 500 grains of carbonate of soda, and sufficient of the acid to neutralise the carbonate of soda are used (from 420 to 560 grs. of acid for every 350 grs. of alkali). The carbonate of soda is mixed with 2¾ pints of water, the muriatic acid with ¾ pint. The flour is divided into two equal portions. One portion is kneaded into dough with the soda solution; the remainder is thrown in and the acid solution poured in while the whole is kneaded. Salt may be added for flavouring. Other methods of mixing may be employed.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 7 (*new series*), p. 267; London Journal (*Newton's*), vol. 11 (*conjoined series*), p. 46.]

A.D. 1836, June 2.—N° 7106.

HEBERT, Luke.—(*Partly a communication.*)—“Machinery and “processes for economising and purifying the manufacture of “bread.”

The whole of a mill and bakery is described and figured. The flour is mixed with distilled water in a kneading machine, carbonic acid gas being at the same time introduced from one or more generators, in which it is made from lime and dilute sulphuric acid. Salt is also supplied, and the whole is mixed by a scraper attached to a horizontal vertical axis working through the vessel. The dough is removed through a sliding door at the bottom of the vessel, and passed down inclined planes to moulding tables. The remaining apparatus is mainly similar to that described in No. 6370, A.D. 1833. The vapour in the oven is retained under a slight pressure. The ovens have moveable shelves, for bread of various sizes. A small aërating apparatus is described suitable especially for ships' use. By it gas is admitted into a kneading machine similar to the above. Vessels ready charged with gas may also be used.

A portable oven for use on ship-board and elsewhere is described. It consists of a vessel with a double cover, within which are suspended pans or vessels for baking. These vessels may also be supported on studs so that a space is left between the two surfaces. The oven is heated by being suspended above or in front of a fire.

[Printed, 1*s*. 6*d*. Drawings. See Engineers' and Mechanics' Encyclopædia, vol. 2, p. 22.]

A.D. 1836, June 13.—N° 7114.

PERKINS, Jacob.—"Apparatus for cooking."

[No Specification enrolled.]

A.D. 1838, January 23.—N° 7548.

JAMES, Herbert George.—(*A communication.*)—"Improvement in making bread."

For making bread, instead of pure water, water in which a portion of flour has been boiled is used. For a sack (280 lbs.) of flour, ten pounds of flour are mixed with twenty quarts of cold water. Fifty-five to sixty quarts of water are then boiled, and the "diluted flour" added. The mixture is then boiled for a quarter of an hour and strained. When cold (75° Fahr.) it is fit for use. The bread is made in the usual way, but with a larger portion of salt than usual.

[Printed, 4*d*. No Drawings. See London Journal (*Newton's*), vol. 12 (*conjoined series*), p. 336.]

A.D. 1838, March 15.—N° 7593.

JOYCE, Thomas.—"Apparatus for applying prepared fuel to "various culinary and domestic purposes."

The fuel used is described in the Specification of No. 7509, A.D. 1837. A plate warmer, for keeping plates or food hot is described. It consists of a chamber with shelves, through the centre of which passes a hollow pillar. Within this pillar a portable stove is placed. The stove consists of a vessel having air-holes above and a square hollow below to admit air to the centre of the fuel.

Two hot-plates, useful amongst other purposes for boiling and stewing, are described. In one the stove is of an inverted conical shape, with a central pillar rising from the cone's base. The cooking utensils are ranged about this central pillar. The middle of the stove is occupied by an air-chamber. The second hot-plate is rectangular in plan, and has the stove at one end. The stove-part is also continued underneath the plate.

The remaining applications of the invention do not refer to the series.

[Printed, 2*s*. Drawings. See London Journal (*Newton's*), vol. 17 (*conjoined series*), p. 73.]

A.D. 1838, June 2.—N° 7667.

GREEN, Joseph.—"Improvements in ovens."

An ordinary dutch oven is fitted with a shelf, and to this shelf is hinged a cover which shuts down over the article to be baked. Below the shelf is a reflector of the same shape as the top of the oven. The reflector reaches from the back of the shelf to the front edge of the oven bottom.

[Printed, 10*d.* Drawing. See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 414.]

A.D. 1838, September 27.—N° 7823.

WHITE, John.—"Ovens and heated air stoves."

One improvement consists in making ovens with a double casing filled in with fire-clay. The drawing represents an oven with a fire below it, and under the oven bottom a thick cast iron plate to protect it. The improved stove is not intended for cooking purposes.

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 12 (*new series*), p. 167; London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 13.]

A.D. 1839, April 3.—N° 8018.

OVERTON, William.—"Apparatus for making ships' bread "or biscuits."

The machine for kneading the dough consists of a hopper, from which the dough is delivered between two fluted rollers driven by hand on to a shoot. After being passed several times through the machine, the dough descends the shoot to the cutting machine. In it it is received on a table and acted upon by rollers; two plain for pressing it out, one having strips of metal which cut the dough into hexagons, and one set with pins to pierce it. Instead of these two last a descending stamper may be used. The rollers are adjustable as to height. From them the dough is passed to the oven.

[Printed, 1*s.* Drawing. See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 226; Inventors' Advocate, vol. 1, p. 131.]

A.D. 1839, April 25.—N° 8051.

JONES, John.—"Frying and grilling pan."

The pan is in other respects of the ordinary description, "but "across the bottom of it, on the inside, there are a number of

" narrow ribs which rise to about half the depth of the pan, but
" are kept clear of the sides, an open space or channel of about
" an inch in width being left between the ribs and the sides, all
" round. The steak, chop, or other article of food is placed on
" these narrow ribs, and obtains through them all the benefit of
" such fire as may be beneath the pan, without being liable to any
" injury from the fire being too strong or too low, so that there
" is no occasion to wait for a bright fire till the process of cooking
" is commenced, as in the case of the common gridiron. The fat
" or grease which falls from the meat collects in the spaces
" between the ribs, and passes thence into the circular channel
" between the ribs and the sides of the pan, from which it is
" poured out after the process of cooking is over. The ribs may
" be made of various forms, and they may also be variously dis-
" posed and arranged." "A moveable framework of ribs or
" studs might also be made separate from the pan, to fit into it
" or be taken out as occasion may require."

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 373.]

A.D. 1839, June 22.—N° 8122.

CALDER, George.—(*A communication.*)—Roasting apparatus.

Around a central cylindrical stove is arranged an annular frame on which are fitted several roasting jacks with dripping pans below them. The jacks are connected by gearing so that each continually revolves on its own axis in an orbit round the stove, whence the machine is called the "planetarium roaster." The machine may receive occasional motion from a handle turned by hand, or may receive motion in any convenient manner. Curved reflectors may surround the apparatus. A similar apparatus may be used in front of an ordinary fire.

[Printed, 6*d*. Drawing. See Inventors' Advocate, vol. 2, p. 34.]

A.D. 1839, July 3.—N° 8141.

CRUCKSHANKS, Alexander.—Cooking by gas, etc.

The grate of a kitchen stove is filled with pieces of fire-brick or other incombusible matter, or metal covered with such matter, and gas is turned on to them. These pieces are preferably hollow. Dampers or other devices to increase the draught may be used. The vapour of any inflammable liquid contained in a vessel below the grate may be used instead of gas. Liquid fuel may be injected into the grate by pressure from a reservoir at a higher level. A sheet of wire gauze protected by a coating of fire-clay, etc., and either plain or corrugated, may be used instead of the pieces of fire-brick, etc.

[Printed, 1*s.* 6*d.* Drawings. See London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 139; Mechanics' Magazine, vol. 33, p. 241; Inventors' Advocate, vol. 2, p. 131.]

A.D. 1839, July 20.—N° 8157.

BROWN, Edward.—"Apparatus for cooking."

A kitchen-range is described. The grate is at one side. Its bars are vertical, and half of them slide so as to fill up the spaces between the rest and close the grate. Above it is a hot-plate with a hole through which the grate may be supplied with fuel. The flue passes from the side, over the oven, down the other side of the oven between it and the boiler, under the boiler, and up its other side to the chimney. Below the oven is a hot closet. The draught is regulated by drawing in or out an ash-pan below the fire. Underneath the grate is a tube open to the front and communicating with the chimney, the use of which is to make a draught for driving a roasting-jack. A tube fitting in the former one leads to the fly of a jack, and the draught of the air turns the fly. Motion is thus communicated to a horizontal axis which supports a frame. From this frame are suspended the joints, etc. to be roasted. Below each is a dripping-pan which is also carried round by the frame. The whole is enclosed within a screen and is moveable.

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 13 (*new series*), p. 215; Mechanics' Magazine, vol. 33, p. 236; Inventors' Advocate, vol. 2, p. 133.]

A.D. 1839, August 21.—N° 8202.

JOYCE, Stephen.—Cooking and other stoves.

Stoves for various purposes are described, amongst them a stove for cooking. It is shaped like the frustrum of a cone. At the bottom is a grating and at the top an opening through which fuel is supplied. This opening is closed by an air-tight lid. An outer casing surrounds the stove and is filled with water. Pipes pass from apertures in the lower part of the stove to a chimney at the side. When the stove is filled with fuel, the fuel in the upper part does not ignite, as there is no supply of air, but that in the lower part burns from the draught passing through the grate and the pipes to the chimney. As fast as this burns, the fuel above falls down and renews the supply. An additional water space may be contained in the middle of the stove, and be connected with the outer water space. Pipes carry the steam to suitable cooking vessels. There is a safety valve, and taps for supplying or draining off water. An oven to be heated by a separate fire may be added, but this does not form part of the invention.

[Printed, 1*s*. Drawing. See Inventors' Advocate, vol. 2, p. 179.]

A.D. 1840, February 5.—N° 8373.

STEELE, Wilkinson, and STEELE, Patrick Sanderson.—" Kitchen ranges for culinary purposes."

The boiler is placed at the back of the grate and rises some way above it. The supply pipe rises within it to near the top, and a discharge pipe leads from near the bottom to a drain or other convenient place. By this means the mud, etc. from the bottom is readily cleared away. Or the supply pipe may be at one end, and the discharge pipe at the other, so as to cause a current for cleansing purposes. Taps for obtaining water are fixed to this discharge pipe. There is a special cistern for filling the boiler. The hot air from the grate is led to a space below and behind the boiler. To regulate the heat there are dampers. The grate bars are moveable. They are formed with T ends, and rest on bars at their ends. There are two ovens, one above the other, each ventilated by a separate pipe at the back. They have false bottoms, and in the spaces thus formed, air is heated before being admitted through apertures into the oven. The shelves are of trellis-work, to assist ventilation. At the opposite side of the grate to the ovens, are a hot-plate and a hot closet, heated by a flue which passes between them. A ventilator leads from the space over the hot-plate into the chimney. The remainder of the range is figured, but not described, as being of the usual construction. The rest of the specification is taken up with a description of a method of supplying hot water to baths, etc.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 14 (*new series*), p. 159; Inventors' Advocate, vol. 3, p. 99.]

A.D. 1840, March 25.—N° 8443.

HILL, Samuel.—" Making of bread and biscuit."

With the usual ingredients, the flour of wheat, rye, barley, Indian corn, and rice, the following are mixed:—" Arrowroot or

" tapioca or cassava or sago, or millet or flour from the kittul " tree or corokan seed, or the fruit of the palmyra tree or sougee." About four parts of the former ingredients are mixed with one part of the latter, or if rice is used, " one sixth to one eighth por- " tion of rice in respect to the others of the first-mentioned in- " gredients," and the rice is steamed. For brown bread, a little cocoa is used in the water for mixing the dough to colour it. Similar dough may be used for making biscuits. Bread for animals is made of " maize," " oatmeal, rye meal, malt dust, " grain, sago, paddy, rice, cassava, potatoe flour, bean meal, pea " meal, brewers' grains, poornak, corokan, punatto," mixed with " water, beer, liquid from the distillers, jelly made of jaffna moss, " oil and fat or graves, either separately or jointly." The ingredients are generally boiled together, and afterwards baked.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 16 (*new series*), p. 54; London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 172; Inventors' Advocate, vol. 3, p. 228.]

A.D. 1840, June 2.—N° 8527.

DE MONTMIRAIL, PIERRE DUFAURE.—(*A communication.*) —" Manufacture of bread."

Instead of pure water, water in which gum arabic has been boiled is used. The proportions are 8 quarts of boiling water to 4 oz. of gum. The solution is used at " about blood heat." The salt, instead of being put in the water, is dried, finely pulverised, and mixed with the dry flour. The apparatus figured shows a boiler for preparing the gum solution, a trough into which it flows to cool, and a kneading-trough supplied from the cooler by a tap.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 16 (*new series*), p. 346; London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 385; Mechanics' Magazine, vol. 33, p. 589; Inventors' Advocate, vol. 3, p. 372.]

A.D. 1840, June 17.—N° 8547.

PROSSER, RICHARD, and RIPPON, JOHN JAMES.—Stoves for heating and cooking.

Stoves for various purposes are described, amongst them one for cooking. The fire is contained in a case closed at top by a slide, over which is a moveable lid, the edges of which fit into a bed of sand. There is a grating below, and under the grating a vertical partition. Air is admitted on one side of the partition, passes through the fire over the partition and down the other side to a chimney. There is a drawer for ashes, and a sliding plate furnished with teeth like a rack to stir the fuel. The top of the stove forms a hot-plate on which cooking can be carried on, and at one end of it a cover may be placed, under which roasting can be done. For supplying fuel a "hod" is used, of which the bottom slides. This is placed on the top of the stove, a projection in the slide of the stove takes into a notch in the "hod" bottom, so that the two slides can be withdrawn together. The fuel thus falls into the stove, and the slides are replaced. By this means no smoke is admitted into the room.

[Printed, 5*s*. 10*d*. Drawings. See Mechanics' Magazine, vol. 34, pp. 13 and 17; Inventors' Advocate, vol. 4, p. 50.]

A.D. 1840, November 25.—N° 8717.

GRELLET, Charles.—(*A communication.*)—"New modes of "treating potatoes in order to their being converted into various "articles of food."

First, potatoes are peeled, boiled, and reduced to a paste; second, raw potatoes are peeled, dried, and reduced to flour; third, potato pulp "deprived of the feculent parts" is made into a moist paste; "fourth, the same is boiled, dried, and reduced "to meal. The resulting materials are to be used for making "bread, biscuit, and pastry." The inventor says, "When I "intend to use the materials before they are brought into a dried "state to make the several articles of food, I prepare the feculent "parts and I stop at the point when the feculous parts are moist, "and I then mix with them the moist paste of boiled potatoes "and the boiled pulp." "I prepare the dry farinaceous parts of "these matters, first, the feculous parts; second, the farinaceous "parts; third, the pulp." "I take the fecule of the potato in "the state of green dextrine" and dry it, "and I take the boiled "paste and boiled pulp in the state they are after being dried, "and I pass them through" mills. "These pastes and mealy "parts" are to be mixed together in various proportions; corn flour or other farinaceous matters may be added.

Several machines for use in the process are described. For peeling the potatoes, two concentric cylinders revolve horizontally within a vessel of water. The inner surface of the outer cylinder is studded with spikes, and the outer surface of the inner cylinder with brushes. Between these the potato is peeled. The potatoes are delivered from a hopper at one end and discharged from the other end of the cylinder on to the bottom of the vessel which is inclined. A tap is provided for drawing off the water.

For drying the materials, an air pipe passes through a furnace and discharges into a chamber fitted with shelves covered with lime. Thence the air passes into a drying chamber. A rotary fan keeps up a draught through the chambers.

A mill for grinding the potatoes into flour and sifting and drying the flour is also described.

[Printed, 1*s.* 2*d.* Drawings. See Mechanics' Magazine, vol. 34, p. 446; Inventors' Advocate, vol. 4, p. 357.]

A.D. 1841, January 14.—N° 8793.

JONES, Alexander.—"Manufacture of copper tubes and "vessels."

Amongst the articles to be made are mentioned stew-pans. A mould of fusible metal or any suitable substance is formed; if it is a non-conductor of electricity, it is brushed over with a coating of nitrate of silver or other conductor. The mould is placed in a bath of a salt of copper, and surrounded with a tube or mass of copper which does not touch it. The mould and the mass of copper are placed in connection with the opposite poles of a galvanic battery, the mould with the positive, and the copper with the negative, and copper is deposited on the mould. When a sufficient thickness has been deposited, the article is removed and the mould melted out. Or different parts may be made separately and joined by being exposed at their edges to the above process. The parts where no deposit is required are protected by varnish.

[Printed, 8*d.* Drawing. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 106; Mechanics' Magazine, vol. 34, p. 399; Inventors' Advocate, vol. 4, p. 324.]

A.D. 1841, September 8.—N° 9069. (* *)

DREW, Joseph, the younger.—"Rolling and cutting lozenges."

Upon a suitable frame is an inclined plane, whereon are three or more pairs of rollers; if the material to be operated upon be of a tough nature, a pair of fluted rollers may be placed above the others. The rollers are coupled by toothed pinions "by which they are made to turn simultaneously in opposite "directions;" at the reverse ends of their axles are bevelled pinions geared to a lateral shaft mounted at the side of the frame. On the outer end of the lower roller of the top pair are affixed a fly wheel and winch or a pulley with a strap. Each roller is furnished with a scraper attached to a weighted lever. After the plastic material has passed between the rollers, it descends to the cutting apparatus, which is composed, 1, of a series of circular or other shaped cones having sharp edges at their upper ends; 2, a table, on which the cutters are mounted, sliding on two horizontal bars; 3, a plate jointed to one side of the table and perforated with holes corresponding to those of the cutters; this plate, called a "frisket," is laid over the cutters, and the material is placed upon it; 4, a "tympan frame" with a leathern back, jointed to the table; this frame covers the material and keeps it from shifting; 5, a heavy pressing roller turning in standards on the horizontal bars; 6, a board, "slidden into the carriage under the table," for the reception of the cut wafers, etc.; 7, a series of brushes to be passed up the cutters by means of a pendent jointed lever; and 8, a rack and its appendages for moving the cutting apparatus to and fro. A modification of the cutting apparatus is described, in which the cutters or punches are arranged to descend upon the material after it has been carried forward from the rollers on to a perforated plate. Amongst the various applications it is stated that "this "machine is also applicable to the rolling and cutting of biscuits."

[Printed, 1*s*. Drawings. See London Journal (*Newton's*), vol. 24 (*conjoined series*), p. 91.]

A.D. 1842, February 25.—N° 9268.

SAUNDERS, William.—"Apparatus employed in roasting and "baking."

The first part of the invention relates to a means for basting the meat. A jack attached to a meat screen is worked by means of a weight suspended by a cord over a pulley at top. This cord turns a wheel below and the motion is communicated to the jack. The same wheel by means of a crank works a pump which pumps up the gravy to the top of the screen and pours it upon the meat. A telescopic spit by which the meat may be raised or lowered is also shown.

The second part relates to a kitchen range for the centre of a room. About a central fire-place are four screens for roasting meat. In the angles of the square are four ovens or hot closets.

Above is a boiler, surrounding the flue. In the flue is a smoke jack with appliances for working four spits and basting pumps.

In the third part kitchen ranges of the ordinary description are shown. The grate projects forward so that its side plates may be removed, and the heat from the sides of the fire used as well as the front. The hot closets and hot-plates may be arranged in various ways, and may be of various numbers. They are heated by flues led above, round, and below them. The boiler is situated at the back of the fire.

[Printed, 1*s.* 10*d.* Drawings. See Record of Patent Inventions, vol. 1, p. 56.]

A.D. 1842, March 4.—N° 9277.

PALMER, WILLIAM.—"Vessels for making infusions or decoc-"tions, and for culinary purposes."

Amongst other matters described in the Specification is an apparatus for cooking eggs. Within a vessel another smaller vessel is placed on supports which sustain it about the middle of the larger vessel. The small vessel has a hole in its bottom covered with wire-work. The eggs are placed in it, and boiling water poured on them. The water filters slowly through, and by the time it has all run off, the eggs are cooked.

[Printed, 1*s.* 2*d.* Drawings. See Record of Patent Inventions, vol. 1, p. 90.]

A.D. 1842, June 2.—N° 9377.

JUBBER, HENRY.—"Kitchen ranges and apparatus for cook-"ing."

An external metal casing contains the range. To the back of this two plates are rivetted, so that they form the sides of a flue for a grate open on three sides. In the upper part of this flue is a smoke-jack of the usual construction, "or of a series of fans" on a horizontal shaft. This turns two hanging spits, one on each side of the fire, which are suspended by wire ropes, and kept at a suitable distance from the fire by racks. It may also turn horizontal spits in front of the fire. Or there may be a spit on one side of the fire, and an oven and boiler on the other. A boiler is placed either in front of or behind the fire. In front of the grate is a hot-plate, heated by an additional fire communicating with the larger fire. A damper is provided in the air passage below the grate.

A boiler is also described, heated by a fire below it and another above. Over the upper fire is a hot-plate, and upon this a moveable cover which may form an oven.

[Printed, 1*s.* 4*d.* Drawings. See Mechanics' Magazine, vol. 37, p. 125; Record of Patent Inventions, vol. 1, p. 363.]

A.D. 1842, September 15.—N° 9471.

BOWLES, Frederick.—(*A communication.*)—" Preparing flour " from grain and potatoes."

Potato flour and corn flour are mixed to make bread, and a mill for grinding them, as well as an apparatus for rasping and washing them is described.

For separating starch, a paste is made of the flour, and placed at the bottom of a vessel beneath a fluted roller. It adheres to this roller, and as it is carried round, water is poured over it to wash away the starch through fine wire sieves. The residue not carried away by the water is made into bread, biscuit, etc.

[Printed, 2*s.* Drawings. See London Journal (*Newton's*), vol. 22 (*conjoined series*), p. 376.]

A.D. 1842, October 20.—N° 9498.

ALZARD, Gilbert Claude.—" Bread, biscuits, macaroni, " vermicelli, and pastry."

The object is to produce bread, etc., that will keep longer than usual. This is attained " by producing an extraordinary fermen- " tation in the dough." The following is the description given of the various processes :—

" For the manufacturing of biscuits, I take equal portions of " wheaten and rice flour, into which I pour the necessary quan- " tity of water, taking care, however, to have the water as hot as " possible, and a temperature at least equal to that of boiling, and I " proceed afterwards to prepare the dough by the means herein- " before described. I introduce the yeast to produce the fermen- " tation before the dough has become cold. The commencement " of the fermentation will be known by touching the dough, " which will then have acquired a certain degree of spongy feel, " as will be easily ascertained by any person or workman having " a thorough knowledge of the art of baking. The development " of the fermentation before the paste is placed in the oven de- " pends upon the proportion of heat which enters into the paste. " The dough being prepared in the aforesaid manner, and cut

" into the required shape, is put into the oven to undergo the " usual process of baking, which does not require more time " than in the ordinary mode of baking. The process of manu- " facturing bread is exactly similar to the above stated, the same " proportion of the farinaceous substances which are to compose " the paste being employed, and the water which is added being " as hot as possible, and of a temperature at least equal to boiling, " and the yeast being introduced into the dough before it is cold, " and I take care that the yeast employed in the doughs is made " without either beer, vinegar, acid, or other acidulated sub- " stances. In the preparation of the dough for vermicelli and " macaroni, I proceed as aforesaid, the only thing to be observed " is that they required less quantities of yeast than the biscuit or " bread."

[Printed, 4*d*. No Drawings.]

A.D. 1843, March 24.—N° 9677.

NEVILL, ALFRED HOOPER.—" Preparing lentils and other " matters for food."

Lentils are split and the husk winnowed away. They may then be used for the same purposes as split peas. They are also ground into flour for use in puddings, soup, etc. The flour may be mixed with curry powder in the proportion of 1 oz. of curry to 4 lbs. of flour.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 3 (*enlarged series*), p. 313; London Journal (*Newton's*), vol. 24 (*conjoined series*), p. 350.]

A.D. 1843, December 5.—N° 9970.

COOPER, JAMES.—Preserving provisions.

The greater part of this Specification refers to preserving food, and does not come within the scope of this series. In the process a vessel is used which fits into the boiler of a kitchen range. The vessel has apertures at the bottom to admit steam. Several pieces, to all of which the same top fits, may be added to increase its length. Jars containing fruit, etc. to be treated are placed within this vessel.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 3 (*enlarged series*), p. 335; London Journal (*Newton's*), vol. 27 (*conjoined* series), p. 38; Engineers' and Architects' Journal, vol. 7, p. 88.]

A.D. 1844, February 24.—Nº 10,068.

RETTIE, Robert.—" Gridirons, frying pans, and other cooking " utensils and heating apparatus."

A stove for heating air-pipes is figured, but no description of it is given. It is stated that it is available for cooking. It is a cylindrical stove with a double casing, a grate at bottom and a flue at top. In a modification specially intended for cooking, a boiler fits over the grate, and over it is a hot-plate which may have an earthenware cover over it to make an oven. The boiler is moveable, and an oven with shelves may be put in its place. No flue is represented.

In another modification, pipes pass from the lower portion of the stove to convey the heat to a "hollow box or table" over the stove, on which cooking vessels may be placed. Thence other tubes convey the heat to an open cistern. Above the fire is a boiler in communication with the cistern by pipes. On the top of the boiler is a place for a cooking vessel. The boiler has a water gauge. A perforated block, termed a " smoke pre- " ventor" is described; it is to be used in open grates, but not specially in grates for cooking. For cleaning cooking utensils and other articles a brush of wire and fibres mixed is used. The materials are tied in a bundle or set in a back. " Moveable linings" of earthenware are used for culinary utensils. A " sheet- " iron gridiron" made by stamping out of a metal plate, is figured. It appears to have ridges but no bars, and may have a surrounding rim or not. A gridiron of cast iron is also figured, and appears precisely similar to the above, but it is stated to have " fluted convex bars and grooves or channels, with interstitial " openings, and also projecting vertical ridges or bars." A " cook- " ing pan of the ordinary form," or a frying-pan, is also figured.

[Printed, 10*d*. Drawing.]

A.D. 1844, July 18.—Nº 10,264.

ARMENGAUD, Charles.—(*A communication.*)—Apparatus for heating and cooking.

Several stoves are described, but the only part of the invention connected with this series consists in the employment of lime for producing heat. A vessel with two divisions is employed. In the upper is water, in the lower lime. The water passes through a cock on to the lime, and slacks it. The heat thus obtained may be used for culinary purposes. The apparatus may have several such double chambers to be employed at once or in succession.

[Printed, 1*s.* 6*d.* Drawings. See Artizan, vol. 3, p. 70.]

A.D. 1844, November 2.—Nº 10,374.

SMITH, CHARLES.—" Cooking, culinary, and domestic articles."

The matters included in this specification are very numerous and varied. A part only relate to this series. For cooking by steam, a boiler, fitted with a safety valve, is surounded by tubing which opens to the top of the boiler, so as to receive the steam, and passes to the fire grate. The tubing is enclosed in a casing of sheet iron, and packed with " silicicious sand." It may pass behind or beside the fire, or the fire-bars may be hollow and in connection with it. Pipes by which the steam can be conducted to any place required are provided. A stove is shown in which the passage for admitting air passes over the boiler down its back and to the bottom of the fire-grate. A " canopy " is fixed over a boiler. It is formed of fixed metal plates, with an opening closed by sliding doors of sheet iron. Vessels may be made double, with sand between the two shells. The outer shell may be coated with enamel. Revolving doors may be applied to close in a stove. They have a rim at top which bends over into a bed of sand along which it slides. They have friction rollers either at top or bottom. Cooking utensils are made in copper, etc., with a double bottom of iron, and " a strata " of sand between the two bottoms. A strainer of perforated metal or wire gauze is fitted to such vessels, and a double cover, one part solid and the other perforated. The two covers may be separate, or connected by a bayonet joint or otherwise. A " culendar " is made with a moveable top and bottom, between which vegetables, etc. can be pressed. Saucepans, etc. are made " with inverted conical bottoms," and pivotted on a stand which can be turned up when the saucepan is on the fire. A stand for heating vessels is made of a cylindrical shape. It has a groove at top into which a flange on the vessel fits. This groove may be filled or not with sand. Below is a grate on which wood or other fuel may be burnt. The vessel may have a tube through it to increase the heating surface. Or a tube may carry off the smoke from the side of the cylinder.

For cooking by steam, a cylindrical vessel is divided vertically by a partition. One of the chambers thus formed is divided horizontally by a partition. The lower small chamber forms an oven, the upper a steamer, the larger one a boiler. The whole is placed directly on the fire. A flue passes beside and over the oven to a pipe at the side. The oven has a side door. Or the boiler may partly surround the oven in the lower half of the apparatus, and the steamer may form the upper half. For baking and boiling at the same time, a boiler is fixed above an oven with a free passage between. The vessel thus formed is placed on the fire. The oven has a double bottom filled with sand. For boiling and steaming a vessel slides within another. It has a perforated bottom, and can be fixed at any convenient height by a catch. For boiling the inner vessel is shut close within the other. For "straining" it is raised.

Gridirons are made of thin cast iron and are fluted; "the upper "angles of the flutings" are sometimes perforated with small holes. The sides preferably "project upwards." There may be a trough to hold dripping. Saucepans, etc., are made with corrugated iron bottoms. A gridiron has a frame of wirework hinged to it. It may be made to go on the top of the fire or hang in front of it. A thumbscrew holds the parts together. A tin screen may be hung in front of the fire. Within it is a spit from which a double frame of wire is hung. Within this the meat is placed. A trough above is perforated to allow its contents to drip on the meat. There is a door behind through which the meat can be inspected.

A cradle spit is made of ironwork on a metal frame. On its axle are arms which carry buckets for basting the meat. A curved screen may be used with a trough at top, into which these buckets discharge. Small spits may be passed through the wirework to secure small articles.

Frying-pans may have covers, solid or perforated or partly of wire. They may have a double bottom with "a strata" of sand. Saucepans may be made double with sand between the inner and outer shell. Hinged frames of wire pivotted to handles may be used for placing articles in, which are to be thus introduced into the cooking vessels. A frying-pan may be made with a double cover, and the smoke, etc. be allowed to pass through the space in the cover, For roasting potatoes a vessel is made in two parts, the upper cylindrical and the lower conical. The upper part has a perforated plate on its bottom. Potatoes and sand are placed in the conical portion. By inverting the vessel, the sand is sifted off the potatoes.

Baking dishes are made with solid or perforated covers. Within them are shelves or spits to hold meat, etc. They have double bottoms filled with sand. They may have locks and bolts attached. A double-bottomed vessel with sand in the double bottom may be applied to a chamber lamp for heating water, etc.

A flour dredge is made with a perforated bottom, and also a larger opening closed by a lever and spring.

A plate-warmer is formed of a vessel having an inner and outer shell with hot water between. There may be a rack for raising the plates.

For mincing meat, etc, two cylinders slide one within the other. The inner one has a longitudinal slot along its top, and the other a spiral slot, making one revolution in its length. Within them slides a piston with a shank at the side. This shank slides in the longitudinal slot, and as it passes turns the spiral slot so that the outer cylinder covers the slot in the inner everywhere except at the point where the shank passes out. A screw acting on the shank drives the piston from end to end of the cylinders. On the end of the screw shaft knives are fitted, which cut the meat, etc. as it comes out. For pressing lemons and cutting sugar a lever is hinged to cheeks rising from a stand. Beyond the fulcrum is a blade for cutting sugar acting against a fixed blade. Between the fulcrum and the power the lever acts on a piston, which slides in a vessel with perforated sides and bottom to squeeze lemons. For rolling pastry a circular marble is made to revolve on a central vertical shaft. Fixed above it is a radial roller capable of adjustment in height.

For cooking eggs a vessel is placed over a stand, within which is a plate for an iron heater. The eggs are placed in a perforated vessel within the first vessel. For poaching eggs several perforated vessels are placed one upon another. For cooking steaks, chops, etc. a vessel is placed on the heated stand; the cover has a recess within which a second heater is placed.

For mashing vegetables, etc. a lever having a ball at the end works in a pan. From the side of the pan spring supports which unite over the centre in a socket. In this socket a ball about the middle of the lever works. The lever has thus nearly universal motion. A covering of tin surrounds the whole, and it may be made air-tight. For washing vegetables, etc. a vessel is pivotted on a central pin in the bottom of an outer vessel. The inner vessel has a perforated bottom. Handles are provided by which a rotary or oscillating motion may be given to the inner vessel.

This specification consists of 52 pages, and the inventions are ranged under 20 different heads. There are four large sheets of drawings, containing over 250 separate figures.

[Printed, 4*s.* 6*d.* Drawings.]

A.D. 1844, December 20.—N° 10,444.

THOMPSON, James.—"Preparation and application of various "farinaceous products."

Potatoes are washed in a machine composed of a cylinder of wooden bars revolving within a tub of water. The potatoes are placed in the cylinder, and by its action are washed and peeled. A stream of water flows through the tub, and washes away the refuse. The potatoes are next pulped, and the pulp washed in sieves of wire gauze. The fibrin remains in the sieves, and the starch is carried away by the water. Any remaining portion of fibrin is extracted from the starch and water by the addition of common salt, in the proportion of an ounce to a gallon of the liquor. The fibrin is converted into yeast by the following process:—It is pressed and dried, then ground, and the meal mixed with a decoction of hops. The mixture is strained and fermented. It is then available for use as yeast. The flour is used for bread-making. It may be added to the liquor used for making the dough, in the proportion of one or two pounds of potato flour to each sack of wheat flour. Or a jelly of the potato flour may be made with boiling water and worked up with the dough. For pastry the potato flour may be mixed in the dough in the same proportions as for bread. A "fancy cake" may be made "by "beating up the yoke of eggs with sugar, thickening with potatoe "flour, flavouring with lemon or citron, and then baking."

[Printed, 4*d.* No Drawings. See London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 28; Mechanics' Magazine, vol. 42, p. 443.]

A.D. 1845, January 28.—N° 10,499.

NORTON, George James.—"Cooking apparatus."

Above a fire grate is a gas retort, the gas from which is led away to any convenient place. Above this again are ovens or hot closets, behind and amongst which the flues from the back of the fire are led. Above these is a chamber in which are vanes to turn a spit suspended in front of the fire. Over this again is a reservoir cistern, connected with the other cisterns which are connected with boilers one on each side of the fire. Besides these boilers and cisterns are hot closets over which are steam kettles. There is a space below the ash-pit, to be used as "a preparatory heating " chamber."

In another range described, an open fire-place is surrounded by boilers which supply a steam-chest situated behind the fire. Steam is thence supplied to cooking vessels at the side. Below these vessels are hot closets. A smoke jack for driving vertical or horizontal spits is fixed above the grate.

A roasting screen is made with a case at top within which is a wheel with vanes. On these vanes a stream of hot air or steam is directed. The motion thus obtained rotates a spit. The hot air, etc., is discharged from the opposite side of the case into a compartment at the side of the screen, which is thus made available as a hot closet.

In another screen the mechanism is contained in a box underneath, and the motion is obtained from a spindle on which a pair of magnets are fixed, that are driven by means of a "Smee's " apparatus" (electrical).

The fly of a smoke jack may be fixed on a spindle with an endless screw upon it. This screw drives a toothed wheel, and it actuates the spit.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1845, January 28.—N° 10,501.

LESLIE, JOHN.—Cooking and ventilating apparatus.

The fire-place is solid below, and narrow from front to back. The oven is semi-circular in section, but with the side next the fire flattened. The flue from the top of the fire is shaped to correspond with the sides of the oven, entirely round which it passes. The boiler is shaped also on the inner side to correspond, and surrounds at top, back, and bottom the oven and fire. The flue after passing over, behind, and under the oven, turns down over the lower portion of the boiler, proceeds under its bottom and turns up along its back to the chimney. The top of the boiler is flat, and forms a hot-plate; there may also be places for cooking vessels to be supplied with steam from it. There is a damper in the chimney. The rest of the Specification refers to ventilating apparatus.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 6 (enlarged series), p. 177; London Journal (*Newton's*), vol. 27 (conjoined series), p. 113.]

A.D. 1845, March 27.—N° 10,576.

BOWSER, William, and BOWSER, William, junior.—" Ships' fire-hearths."

The hearth may be used "either with a range or open fire in " front;" it may have a shelf for roasting on, over which a folding metal cover comes down. This shelf has a corrugated surface. The boilers are directly over the fire, and their angles are rounded off to allow the smoke, etc., readier passage. The ovens have " hollow bottoms." A hot-plate with a separate fire is added to the range. A "cap" is constructed to fit over the top of the stove to form a hot closet and retain the heat. Under the fire-places are "safety boxes" which draw out. Immediately under the grate are openings to admit air. A boiler combined with a condenser is used. The boiler has flues passing through it.

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1845, April 29.—N° 10,639.

SYLVESTER, John.—" Stoves and fire-places."

The only part of the invention relating to this series consists in so constructing a stove with an oven or boiler or both "applied " thereto, that the bottom bars may form a part of the same " casting as the boiler or oven." The bars are figured in the drawing as projecting some way under the bottom of the oven and boiler.

[Printed, 1*s*. 6*d*. Drawings. See Transactions of the Society of Arts, vol. 54, p. 162.]

A.D. 1845, June 3.—N° 10,697.

LUCY, William.—" Preparing dough."

The dough is mixed in a trough with vertical sides and a bottom shaped to correspond with the circles struck by the revolution of arms on two parallel horizontal axles. These arms are so arranged as just to clear the sides of the trough and one another as they revolve. They are revolved by suitable gearing, and a slight intermittent to-and-fro motion is also given them by the following device. One end of each axle has a projection which takes into a groove in a cam. Part of this groove is circular, and the rest excentric, so that the axle is driven backwards and forwards by the excentric part, but is not moved by the circular portion. The motion is alternate in the two axles. By this means every part of the trough is scraped by the arms, and all the dough kneaded.

[Printed, 10*d*. Drawings.]

A.D. 1845, June 10.—N° 10,714.

SHAW, THOMAS SILVER.—" Roasting jacks."

Two sorts of jacks are described. In the first an alternate revolving motion is employed. A circular spring drives in the usual manner a toothed wheel mounted concentrically with it. The teeth on this wheel engage alternately with two pallets mounted near its circumference and connected by pinions. On the axis of one of these pallets is a toothed quadrant which is given an alternate motion according as the first or second pallet is engaged by the toothed wheel. The teeth on the quadrant engage with a pinion on the main axle, and from it the meat to be roasted is hung.

The second jack has a continuous rotary motion. It is driven by a spring, and the motion is conveyed by a train of cog-wheels to the axle from which the meat is suspended. On the axle of one of the wheels are hinged two arms carrying weights, and fitted at their other ends with shoulders. When the apparatus revolves too quickly, these arms fly out, and the shoulders are caused to rub against a plate above them. The friction thus produced checks the motion. The main axle of jacks, instead of being suspended from above by a cord, may be supported on rollers. Instead of having a loose piece below for the attachment of the meat, which piece is pressed against the bottom of the jack by a helical spring as in common jacks, the same effect of retarding the too rapid running down of the jack when the weight is removed, may be produced by fixing a wheel on the main axle, which acts as a fly-wheel.

[Printed, 10*d*. Drawing.]

A.D. 1845, December 20.—N° 11,007.

MEADE, HENRY MANDEVILLE.—(*A communication.*)—" Manu-" facture of bread."

The invention relates to bread made partly of maize. A " sponge " of wheat or rye flour is made with yeast, and the Indian meal is then, after being scalded and allowed to cool, mixed with it. If " ferment " is used, it may be either " potato "ferment," or a "ferment" specially prepared from Indian corn, as follows:—"Malt and hop liquor" is prepared "as if for a "potato ferment," and 1½ gals. is mixed with water at about 80° to 100° Fahr., 5¾ lbs. of Indian meal, 2¼ lbs. of rye flour, and 1 lb. of bean flour are mixed together and stirred up in the liquor for ten minutes. 2 lbs. of wheat flour are then added, and the whole put by till it "rises." The "ferment" is mixed up with the "sponge" for making the "union" bread above described, or is used in the ordinary way in making bread of the usual sort.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 8 (*enlarged series*), p. 96; London Journal (*Newton's*), vol. 28 (*conjoined series*), p. 418; Patent Journal, vol. 1, p. 75.]

A.D. 1846, January 12.—N° 11,031.

CHINNOCK, CHARLES.—Domestic utensils, etc.

A colander is made with a piston that can be forced down on the vegetables by a screw working in a bar fixed over the top. The piston may have a design on its under part. The bottom of the colander may be hinged so that the vegetables can be turned out through it.

A saucepan lid is made with a deep flange extending down into the saucepan. This is attached to a float, so that it is raised when the water boils. The flange is perforated, so that when it is raised the steam escapes.

The other matters described have no connection with this series.

[Printed, 3*s*. Drawings.]

A.D. 1846, February 25.—N° 11,111.

BRITTEN, JOHN.—"Heating, cooking, and evaporating."

The greater part of the specification relates to evaporating apparatus for the manufacture of sugar. A steaming kettle is described; it is an ordinary kettle with a tube let into its lid. The article to be cooked is placed on a strainer, the kettle is inverted over it, and the tube put into connection with a steam pipe from a boiler.

[Printed, 6*d*. Drawing.]

A.D. 1846, March 25.—N° 11,149.

SMITH, CHARLES.—"Cooking and culinary utensils."

Parts only of this lengthy specification refer to cooking. Culinary vessels of various sorts may be formed with tapering bottoms and a cylindrical outer casing, so that hot air passes up within the casing and escapes by a row of holes near its top. A portable oven is made of a plate over which fit two covers. In a flue between them smoke, etc., passes and escapes by a hole in the outer one. They fit air-tight into a groove filled with whiting. They may be of different shapes. A combined vessel for baking, boiling, and steaming, is made with an oven in the middle and boilers and steamers at the sides. A flue passes through the middle of the bottom and between the oven and boilers. For toasting, etc., a double wire frame is hinged together and attached to the end of a rod, or it may be hooked on the fire-bars. Culinary vessels are made with recesses to hold heaters or hot water, and their lids may be made air-tight by fitting them in a groove filled with sand or powder or "water or other liquid." "Egg roasters "or boilers" may be made with a stand in which a heater is placed. A warming-pan is made double so that it can be used for roasting potatoes. For washing potatoes, etc., a metal case has within it a roller turned by a winch handle. Two inclined surfaces slope down from the edges of the case to this roller which has a grater surface on it. A flat surface with similar grater points is pressed against the side of the roller by a weighted lever.

The specification consists of 46 pages. There are four sheets of drawings containing nearly 200 figures.

[Printed, 3*s*. 6*d*. Drawings. See London Journal (*Newton's*), vol. 29 (*conjoined series*), p. 356.]

A.D. 1846, May 19.—N° 11,211.

DUNCAN, George.—"Comfits, confectionary, lozenges, and "all descriptions of pan goods."

A barrel-shaped pan is pivotted through its shorter axis on a horizontal shaft. Through one of the trunnions passes a steam pipe which supplies a steam jacket surrounding the pan. Projections with curved surfaces inside the pan deflect the matters within it towards the centre. Almonds, etc. are put in the pan and it is rotated till they are sufficiently heated. Syrup is then put in in successive small quantities till the incrustation is complete.

For cutting lozenges, a number of hollow circular cutters are driven up through perforations in a table by means of cranks. The paste is carried by an apron moving over rollers which have an intermittent motion so as to stop while the paste is being cut. A surface against which the cutters act is fixed over the table. The lozenges fall through the cutters on to an inclined plane.

[Printed, 1*s*. Drawings. See Repertory of Arts, vol. 10 (*enlarged series*), p. 13; Patent Journal, vol. 2, p. 446.]

A.D. 1846, July 29.—Nº 11,316.

LUCAS, Thomas.—" Manufacture of lozenges or sweetmeats."

Isinglass is steeped in water and acetic acid, in the proportion of seven parts (by weight) of water to one part of acid of the specific gravity of 1·04. The steeping is continued for four days. The water may be again used, a sufficient quantity of fresh acid being added to bring the mixture to the proper strength. The isinglass is then carefully washed from the acid, and next boiled with sufficient water to dissolve it. A steam jet is preferred for this purpose. "Book isinglass" is preferred, as being cheaper, but better may be used, and then the steeping and washing may be partly or wholly omitted. The solution is next clarified by boiling and skimming. It is then mixed with 24 parts by weight of gelatine to 7 of solution, and a sufficient amount of sugar. The mixture is stirred together at a temperature of 140° Fahr. It is then left to cool and dry. The sheets formed are cut into lozenges, dried and packed.

[Printed, 4*d*. No Drawings. See London Journal (*Newton's*), vol. 30 (*conjoined series*), p. 269.]

A.D. 1846, September 17.—Nº 11,375.

BROWN, Frederick.—" Ovens for kitchen ranges."

A kitchen oven of the usual character is made with a projecting heater cast on the cheek next the fire. At the top and bottom are plates which leave a small air-space between themselves and the top or bottom. These plates may be in one piece with the top or bottom or separate and attached by screws.

[Printed, 6*d*. Drawings. See Patent Journal, vol. 2, p. 721.]

A.D. 1847, May 29.—Nº 11,725.

STEVENS, Alfred.—" Preparations of certain substances for " making various glutinous compounds."

The object is to produce a dry preparation which may be made into jelly, etc. For jelly, calves' feet or other suitable materials are boiled down, and the oily matter skimmed off. The liquor is strained off and allowed to cool. It is clarified by mixing with it, for every 12 gals. of the liquor, the whites of 100 to 200 eggs ; 3 oz. or 4 oz. lemon juice, or 1 oz. acetic or other "innocuous" acid ; 4 lbs. lemon peel. The whole is run through a sieve, evaporated, if too thin, and dried in an oven for from three to seven days at 100° Fahr. It is then ground into powder, mixed with 34 lbs. powdered sugar to every 20 lbs. of the compound, and bottled. To make jelly, 6 oz. or 7 oz. with 3 or 4 glasses of white wine are to be mixed with 1½ pint of boiling water.

For blancmange, the calves' feet, etc. are prepared as above, but for clarifying, to each 12 gals. of jelly are added the whites of 30 eggs, a little lemon peel and almond water, made by mixing 12 oz. pounded bitter almonds and 24 oz. sweet almonds in 12 gals. water. This preparation is treated as that for making jelly, except that the loaf sugar is mixed in equal proportions. Flavouring may be added. To produce blancmange, 4½ oz. are to be mixed with a quart of boiling milk.

Lozenges are made in the same way as jelly, except that the "composition is evaporated till it reaches a proper consistency." Flavouring and pounded sugar is added, and lozenges made in the usual way.

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 11 (*enlarged series*), p. 350; London Journal (*Newton's*), vol. 32 (*conjoined series*), p. 120; Mechanics' Magazine, vol. 48, p. 284.]

A.D. 1847, August 26.—Nº 11,846.

PRUDAY, Thomas Danson.—Triturating and slicing machines.

Two machines are described; the first is for reducing cooked meat, vegetables, etc. into small particles for soup, etc., and the second for slicing vegetables.

In the first a semi-cylindrical trough of wire gauze is fixed in a stand over a suitable vessel. At the axis of the cylinder a bar is pivotted in slots at the sides. Two parallel arms from this bar carry another bar parallel with the first, and bearing against the sides of the cylinder. Vibrating motion is given by a handle attached to the first bar, and the second bar, which has a suitable hard rubbing surface, drives any materials placed in the cylinder through the gauze. A cover is attached to the trough. The rubbing surface may be faced with a brush of wire or bristles.

In a modification of this machine a flat circular brush is mounted on a vertical spindle and drives the material to be triturated through a sieve in which it works.

In the second machine, a wheel carries cutters on its periphery, so arranged that they cut slices off vegetables placed tangentially to it. A trough is arranged to guide the matters to be cut, which are pressed against the cutters by a spring. This trough may be arranged to present the matters to be acted on so that slices may be cut either with the grain of the vegetable, etc. or across it.

[Printed, 8*d*. Drawing. See London Journal (*Newton's*), vol. 32 (*conjoined series*), p. 167.]

A.D. 1847, September 6.—Nº 11,855.

FERRYMAN, John Barke Gustavus.—"Handles to be applied to various articles."

The object is to fasten the handle so that the article to which it is attached will always remain vertical. Among the articles named are saucepans. The handle is shaped like the ordinary jug handle. At the top it is jointed by a "swivel joint" to a semicircular arm. The saucepan has at its sides pins which rest in hooks at the ends of the arm. It is thus hung as in gimbals. The lower part of the handle rests against the saucepan. To enable the saucepan to be tilted, there is a projection against which the lower end of the handle may catch.

[Printed, 6*d*. Drawing. See London Journal, (*Newton's*), vol. 33 (*conjoined series*), p. 96.]

A.D. 1847, November 6.—Nº 11,947.

DAVISON, Robert, and SYMINGTON, William.—Baking ovens, etc.

The first part of the Specification refers to improvements in a former patent for drying wood, etc.

The second part relates to ovens. Ovens are heated by the admission of currents of air from pipes which have passed through a furnace. When the oven is sufficiently heated to receive the matters to be baked, the supply of air is cut off, and turned into pipes surrounding the oven. The oven may have a revolving bottom.

The rest of the Specification deals with various preservative processes.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 16 (*enlarged series*), pp. 102 and 161; London Journal (*Newton's*), vol. 36 (*conjoined series*); p. 127; Mechanics' Magazine, vol. 48, p. 457; Patent Journal, vol. 4, p. 624, and vol. 8, p. 266.]

A.D. 1847, December 8.—N° 11,992.

BRITTEN, John.—Cooking apparatus.

The boiler is at the side of the fire-place with the oven below it. A flue passes from the side of the fire between the boiler and oven, beside and below the latter and thence away to the chimney at the back. Beside the boiler is a water reservoir, protected from the heat of the flue below it by a layer of sand or other non-conducting matter. This receives some heat from the boiler. When the oven is required for baking, a sliding shield is placed under the boiler to prevent the heat being absorbed by it. When the shield is not in position, the oven is only hot enough to serve as a hot closet. The ash pan is perforated and retains the cinders, while the ashes fall into a receptacle below.

To retard combustion in kitchen grates a sliding damper below the grate, and a door over its front, are used.

For heating brick or stone ovens, they are made with an iron cheek next the fire, which has studs on it on the oven side. There is an air-space between this cheek and the side of the oven, and above and below are apertures of communication between this space and the oven. The shelf is perforated. Such ovens may also be heated by a draught from the fire passing through the lower part of the oven.

Two links are hinged together and a weight attached near the hinge. The end of one link is attached to an oven door, the end of the other to the side of the oven. This arrangement is said to assist in opening and closing the door.

For heating a reservoir for a boiler, a pipe leads from the lower part of the boiler next the fire to the reservoir to convey steam to it. A pipe from the reservoir to the lower part of the boiler supplies fresh water. Or the steam from the boiler may pass into a chamber within the reservoir. Then the condensed water flows into a chamber by the side of the boiler, whence it may be drawn off.

For filling boilers a portable reservoir is placed on the boiler. From it a bent tube proceeds into the boiler. When the top of this tube is uncovered by water, water will flow from it into the boiler.

For cooking by steam, a shallow vessel has an aperture in its bottom connected with a steam-pipe. Over this a large vessel is inverted. Reference is made to No. 11,111, A.D. 1846.

To maintain the heat at a proper temperature in cooking by steam, a shallow vessel of water is placed above a steam chamber, and the meat, etc. to be cooked, is placed in a vessel over this.

A thermometer fitted in a metal tube filled up with metal filings, is placed in a cooking vessel so that the scale is outside and the bulb within.

An egg boiler or sand glass is made with a graduated cylindrical tube between the two bulbs. Also "the foot" is made to "receive the sand when running in one direction." No further description is given.

A "meat hastener" is made with side wings. The basting ladle is the same size and shape as the "well." It has a spout. There is a lid which partially covers the dripping pan to prevent ashes falling in.

An "improved jack" is made by hanging a ring to a skein of silk. The meat is to be suspended to the ring. A tube or screen protects the silk from being scorched.

"Fire-places for cooking chops and steaks" are made with a fixed or moveable cover of non-conducting material.

"For holding aqueous liquids or solutions while being heated" a double vessel containing water in its lower part, is used.

For cutting bread two curved guides are arranged to rise from a base which is lower on one side of the guides than the other, The loaf is placed on the higher part, and cut by a knife passed along the guides. This knife may be hinged or not to the base. Or a knife with a bar fixed to it as a guide may be used.

For cutting sugar, a lever has a cutter attached to it. Its other arm is bent and has attached to it a helical spring which tends to raise the lever. Below the cutter is a fixed cutter. Sugar is pressed along a board supported by a spring at the height of the top of the lower cutter; a "dropper" falls on the sugar from above and holds it steady.

[Printed, 1*s*. Drawings. See Patent Journal, vol. 5, p. 106.]

A.D. 1848, April 5.—N° 12,110.

KNOWLYS, THOMAS JOHN, and FILLIS, WILLIAM.—"Generating, indicating, and applying heat."

A kitchen range is described in which the fire is covered above and the whole top of the range forms a hot-plate. The fire grate is solid below, and has underneath it the oven. At the back is the boiler. The flue passes over the boiler down behind and around the boiler, and to the chimney. There is an open grating before the fire. The handles of the oven doors are preferably of glass.

Pyrometers are applied to baking and other ovens; they may consist of tubes of metal fusible at different temperatures.

A separate compartment is attached to a boiler, in which is a wheel with vanes driven by the steam, for actuating a jack.

A separate oven is figured like the one above described, except that the only passage for air to the fire is downwards through the top of the fire-place. Drying-chambers, etc. may be thus constructed.

A boiler may be built entirely surrounding a fire-grate with a solid bottom. The flues may pass through the fire, so that they are heated and the draught is increased.

For consuming smoke, partitions of perforated fire-tiles are placed in the chimney. These become heated, and ignite the carbon.

[Printed, 1*s.* 2*d.* Drawings. See Repertory of Arts, vol. 13 (*enlarged series*), p. 83; London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 408; Artizan, vol. 7, p. 57; Patent Journal, vol. 6, p. 13.]

A.D. 1848, November 11.—N° 12,324.

ANDERSON, JAMES.—“Separating the different qualities of “ potatoes and other vegetables.”

The potatoes or other roots are placed in a liquid “ the specific “ gravity of which is equal to that of the required classes of such “ roots.” The lighter roots float and are removed, the others sink to the bottom. The process may be repeated with liquids of various densities. The liquid may be water to which is added salt, clay, or other matters.

Reference is made to this Specification in No. 2873, A.D. 1860.

[Printed, 4*d.* No Drawings. See London Journal (*Newton's*), vol. 34 (*conjoined series*), p. 351; Mechanics' Magazine, vol. 50, p. 476; Practical Mechanics' Journal, vol. 2, p. 60; Patent Journal, vol. 7, p. 480.]

A.D. 1849, January 11.—N° 12,411.

WRIGLEY, MILES.—“Manufacture of yest or barm.”

The description of the process is given as follows:—

“Take of yest or barm produced by the fermentation of ale or “ porter one hundred pounds weight; of yest or barm produced “ by the fermentation of spirits (whether made by the distillation "of malt or other grain, or from sugar, or molasses, or any other "article which will produce yest or barm) also one hundred pounds "weight; of malt, barley, oats, and rye ground into flour, each "one pound; of spirits of wine, four ounces; and water, ten "ounces, or as near such proportions as may be found efficient. "The method of mixing the ingredients is as follows:—First, "mix together the brewer's and distiller's yest or barm, and run "the mixture through a sieve, in order to free it from any sediment "or other impurities. Then mix together the spirits of wine and "the water, and pour it on to the grain, at the same time "adding as much of the yest or barm as will make it into a thin "paste; when this is well mixed add to it the remainder of the "yest or barm, and stir it with a wooden spatula until the whole "is well mixed. This forms the compound liquid yest or barm "for the use of brewers or bakers. To manufacture the solid "compound yest or barm, strain the above mixture, take the solid "parts in coarse linen bags, and place them in the interior of a "perforated cylinder in a common hydraulic screw or press; "upon applying pressure the liquid parts will run off, and the "solid parts remaining will form the solid compound yest or "barm."

[Printed, 4*d*. No Drawings. See London Journal (*Newton's*), vol. 35 (*conjoined series*), p. 33; Mechanics' Magazine, vol. 51, p. 44; Patent Journal, vol. 9, p. 70.]

A.D. 1849, March 28.—N° 12,543.

BRITTEN, John.—Cooking apparatus, etc.

Kitchen ranges are constructed "with an inner mantelshelf "projecting partially over the fire, and having two vertical doors "extending from it down to the hob." This is to prevent the chimney smoking. When ovens are "heated by a top and bottom "draft directly from the fire," a damper is placed to shut off the top draft. The oven is heated "by combining the ordinary "bottom draft from the fire with a circulation of hot air through "and around" it. For this purpose a "hollow cheek between "the oven and the fire" is used, "such cheeks having studs or "projections cast on to it, and projecting into the hollow space "through which the air is made to circulate." The draft to heat the hot-plate may pass from a point "below the ordinary "level of the coals." A "pendant handle" is attached to "fall-"down oven doors." This handle has a short lever "projecting

" through a hole in the door, and gearing into the bolt" of the door in such a way that when the handle is at right angles to the door the bolt is open, and vice versa. The handle makes a leg for the oven door when it is open. For feeding boilers a ball-cock with some modifications is used. The ball is "open at the bottom, " and connected with a steam pipe from the boiler by means of " an elastic tube attached to the top of the said ball." A pressure of steam displaces the water in the ball, and renders it buoyant. This causes the boiler to fill with cold water, and the production of steam is checked. For fitting together square the parts of a range; "instead of the ordinary chipping bit," a set screw is used. This is screwed into one plate to form a bearing point for the other. In tubular roasting jacks the "bottom cap" is made " to drop through the tube," and is fixed by a side screw. To make jack chains, iron is wound on a spit, "the one edge or side of " which is wider than the cross section of the required link." The wire is then cut " at the part which corresponds with the " wide edge of the spit." The ends are then welded.

[Printed, 4*d*. No Drawings. See Mechanics' Magazine, vol. 51, p. 328; Patent Journal, vol. 8, p. 6.]

A.D. 1849, March 28.—N° 12,553.

HARRISON, THOMAS.—" Baking ovens."

Ovens are built in tiers, one over the other, and have doors at each end. In each works an endless apron, which passes over rollers at each end of the oven. These rollers are worked from the outside, and have accordingly spindles, which project through the sides of the oven. The aprons are made of chains with cross wires rivetted to them, or of plates of iron hinged together. The rollers are hexagonal, or they may be cylindrical, and have studs which take into slots in the apron. Instead of a continuous, a reciprocating motion may be given to the aprons, and in this case only one door to each oven is required. The aprons may extend beyond the door or doors if preferred. The rollers are flanged to prevent the apron from slipping. The bread, biscuit, etc., is delivered from the moulding machine by an endless cloth to the apron, or it may be placed on it by hand. For heating the ovens, a hot air pipe passes up their sides, and admits hot air beneath a perforated false bottom. The air escapes at the top.

[Printed, 1*s*. 8*d*. Drawings. See Mechanics' Magazine, vol. 51, pp. 332 and 409; Artizan, vol. 8, p. 51.]

A.D. 1849, May 22.—N° 12,616.

DA COSTA, Solomon Israel. — Manufacture of various vessels.

Amongst the processes described, is one by which, as well as other articles, stew-pans may be made. Molten metal is placed in a hollow die; a male die is pressed down upon it by a screw or otherwise, with increasing pressure as the metal cools. The moulds may be kept hot by gas or otherwise.

[Printed, 10*d*. Drawings. See Mechanics' Magazine, vol. 51, p. 523; Engineers' and Architects' Journal, vol. 13, p. 15; Patent Journal, vol. 8, p. 103.]

A.D. 1849, June 5.—N° 12,633.

LAWES, Thomas.—"Generating steam."

A boiler is formed of two "tanks" one on each side of the furnace and flue. These tanks are connected by rows of tubes which pass across the flue. The tubes communicate with steam chambers above. The boiler is available for culinary as well as other purposes.

In kitchen ranges a similar arrangement may be made, the tubes forming the fire bars, and the tanks being placed one on each side of the fire-place. These tubes may also be connected with an ordinary boiler and may be made moveable.

[Printed, 1*s*. 2*d*. Drawings. See Mechanics' Magazine, vol. 51, p. 549; Patent Journal, vol. 8, p. 150.]

A.D. 1849, June 7.—N° 12,642.

MASTERS, Thomas.—Cooking apparatus.

A saucepan for steaming is made with several perforated trays, on which the articles to be cooked are placed. The cover is fastened down by a cross-bar and a screw, and has a thickness of vulcanised rubber between it and the cross-bar. It has also a safety-valve. A saucepan for steaming is made with an inner and outer shell to hold water. The steam passes by pipes down to the bottom of the inner shell, and is discharged beneath a perforated false bottom. A plug surrounded with rubber stops up the aperture for admitting water, and acts as a safety-valve. A second bottom may be added, on which to place articles for cooking. A rim may be attached to the cover for collecting condensed water. This arrangement may be adopted in saucepans without a double casing. A separate lining of porcelain may be attached to saucepans and their covers. A small tube allows the escape of any air between the inner and outer casing. The space between the two casings may be larger, and filled with water. The cover may have a water joint. A fish-kettle is made with pipes at the side, which convey the steam from the water-space below a perforated bottom, by which it is distributed through the kettle. A "stock-pot" for heating soups or keeping them hot, is made with a double casing to hold hot water. The cover has a water-joint. A "biscuit-pan" is made with an internal vessel of earthenware, and an outer casing of metal. Heat may be obtained by placing hot water in the space, or by putting water in and placing the vessel on the fire. For preparing soup and coffee on a large scale, vessels for the purpose are contained in a large hot water vessel. Pyrometers are used in connection with ovens. These are preferably made of mercury in a glass tube, with the scale outside. The scale is graduated with the names of the articles to be placed in the oven at the heat shown. For concentrating and evaporating a double vessel is used, with steam-pipes circulating through it in connection with the outer steam space, to which steam is admitted from a boiler.

[Printed, 2*s*. 6*d*. Drawings. See Mechanics' Magazine, vol. 51, p. 573; Patent Journal, vol. 8, pp. 176 and 187.]

A.D. 1849, July 10.—N° 12,703.

ROBINSON, George Augustus, and LEE, Richard Egan.—Bread making.

A flour hopper has revolving within it a spiked shaft. At its discharge opening is a fluted roller, against which bears a wire to clear it. The flour is delivered to a "mixing cone," which revolves from a centre upon a plate. Water charged with carbonic acid gas is delivered at the same time, the supply of fluid being regulated by a governor on the shaft, which actuates the discharge roller of the hopper. The partly formed paste is delivered to a kneading chamber below, where it is finished by a revolving vertical shaft which has arms on it. These arms rotate between fixed arms on the sides of the trough. The finished part is cut off by a cutter, actuated by a cam or a tappet, and discharged on to an apron, by which it is carried between fluted rollers on a fluted roller and a grooved block, to mould it.

Four ovens are arranged, two on each side of a furnace and boilers. Steam-pipes pass through one pair of ovens, then through the fire, so that the steam is superheated, and lastly discharge it into the other pair. The bread is first placed in the former, then removed to the latter to be finished.

[Printed, 10*d*. Drawing. See Mechanics' Magazine, vol. 52, p. 59; Practical Mechanics' Journal, vol. 2, pp. 251 and 276; Patent Journal, vol. 8, p. 211.]

A.D. 1849, September 13.—Nº 12,766.

PRETERRE, Apoleoni Pierre.—(*A communication.*)—"Apparatus for cooking."

The greater part of the specification refers to apparatus for grinding and making coffee, but a portable cooking apparatus is also described. A vessel to contain water surrounds a stove. Within the same vessel is also placed a smaller vessel. Upon this smaller vessel and rising out of the larger one a series of saucepans is arranged one above the other. Steam is admitted from a pipe into these saucepans. Above the stove is an oven.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 15 (*enlarged series*), p. 193; Mechanics' Magazine, vol. 52, pp. 220 and 257; Patent Journal, vol. 8, p. 296.]

A.D. 1849, September 20.—Nº 12,773.

EDWARDS, David Owen.—Cooking by gas.

A hollow bulb of pipe-clay or metal perforated with a number of small holes is fixed to the end of a gas-pipe. The air enters at some of the lower holes and the gas within is ignited, so that the bulb becomes red hot. These burners may be of various forms; one with a flat top is used for cooking. For roasting or baking, a number of them are arranged in a circle within an oven, or separately. For broiling, a series of them are placed under a single or double set of bars. A grease-pan may be placed below the burners. An earthenware vessel open at bottom, and having a top finely perforated may be used instead of the bulb. The burners may be made in a mould like tobacco pipes, the top closed by hand and perforated. Pipe-clay and fire-clay mixed form a suitable material.

[Printed, 1*s*. 4*d*. Drawings. See Mechanics' Magazine, vol. 52, p. 238; Patent Journal, vol. 8, p. 307.]

A.D. 1849, October 12.—Nº 12,806.

FITCH, Michael.—"Baking bread, biscuits, and other matters."

There are two ovens, one above and one below the fire-place.

Around the fire are air-spaces communicating with the ovens through openings in "trays or shelves," "above and below the "fire-place" "containing or supporting fire tile or other non-"conducting material." The flues may vary in arrangement, they are shewn in the drawing as passing from the sides of the fire along the front of the upper oven, over its top, and so upwards.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 15 (*enlarged series*), p. 278; Mechanics' Magazine, vol. 52, p. 316; Patent Journal, vol. 9, p. 46.]

A.D. 1850, March 23.—N° 13,016.

SIDDELEY, Joshua, junior.—"Ships' fittings."

Amongst the improvements is a "caboose or cooking apparatus" for passenger and other ships. It is figured, but not described. The fire extends over the whole of the bottom of the range; behind it is an oven which the fire surrounds on four sides. Over this oven is a boiler, which extends forward to the front of the range, and on each side of this boiler is an oven. The flues pass up between the boiler and these ovens, and unite at the top. The fire-bars may be arranged so that the bottom of the fire-place is square or curved.

[Printed, 1*s*. Drawing. See Mechanics' Magazine, vol. 53, p. 256; Patent Journal, vol. 10, p. 53.]

A.D. 1850, March 23.—N° 13,022.

WELCH, Edward.—"Fire-places and flues, and apparatus con-"nected therewith."

An "isolated kitchen range" standing away from the wall is described. An oven has on one side of it a fire. The top of the oven forms a "stewing plate." At one side of the oven is a hot closet with a boiler over it, and at the other side a larger hot closet. Above these, forming an arch over the whole, is a second oven. The flues lead up by the sides of the hot closets and boiler to this oven, and thence away to the chimney.

A "cottage oven" is made by fixing an oven directly below the fire. The bottom of the fire-place is formed of a plate.

[Printed, 6*d*. Drawing. See Mechanics' Magazine, vol. 53, p. 257; also vol. 54, p. 93; Patent Journal, vol. 9, p. 298.]

A.D. 1850, November 12.—N° 13,339. (* *)

BALL, John.—"Bakers' ovens."

The inventor says—"I cause my fire (emanating from a "furnace placed in much the usual position) to enter the oven

" at about nine inches above the floor instead of, as now, on " a level with the floor of the oven, and then (instead of, as heretofore, suffering the flame and heated gases, to pass off " directly to the chimney nearer the upper part of the oven) " I cause the heat, after circulating within the oven, to pass " out through two or more flues, made at the back, and on a level " with the floor of the oven." Through these the hot air is carried underneath the floor and thence to a "proving oven" or apparatus for heating water.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 39 (*conjoined series*), p. 66; Mechanics' Magazine, vol. 54, p. 413; Patent Journal, vol. 11, p. 100.]

A.D. 1850, December 19.—N° 13,414.

BACHHOFFNER, George Henry, and DEFRIES, Nathan.—"Obtaining light and heat."

A perforated pipe forming a gas-burner is fitted at the bottom of a suitable casing. Over it meat may be suspended for roasting. Above the meat are perforated shelves on which matters may be baked. At the sides are boilers with inner vessels fitted in them. A pipe leads from the top of each boiler, and discharges steam at the bottom of the inner vessel.

Another stove is formed of a boiler resting on hollow pillars over a gas burner. Gas is discharged from perforated rings below a perforated plate. On this is placed "spongy platinum" or " basichromate of copper," with or without asbestos. The gas is admitted into the mass, and the whole becomes incandescent. The products of combustion pass away by a tube through the boiler. The water may be drawn off from the base of one of the pillars. Coiled tubes passing through the boiler may contain liquid to be heated. The ends of these tubes may pass through the fire. A glass cover may surround the fire.

[Printed, 1*s*. Drawings. See Repertory of Arts, vol. 18 (*enlarged series*), p. 87; Mechanics' Magazine, vol. 54, p. 519; Practical Mechanics' Journal, vol. 5, p. 46; Patent Journal, vol. 11, p. 183; Journal of Gas Lighting, vol. 2, p. 144.]

A.D. 1851, January 18.—N° 13,460.

NORMAN, George.—"Cooking and boiling apparatus."

Two vessels are employed, of similar shape but one sufficiently smaller than the other to fit within it and leave a space free all round. The inner vessel is supported by a flange at the top.

At the bottom of the inner vessel is a tray on which the meat, etc. to be cooked is placed. A little higher is a perforated tray to receive vegetables, etc. The space between the two vessels is filled with water, the steam from which passes through two pipes and pours upon the meat. Thence it rises through the tray to the vegetables. There is a plug for filling the water space, and a tap to test its fullness.

[Printed, 8*d*. Drawing. See Mechanics' Magazine, vol. 55, p. 78; Patent Journal, vol. 11, p. 294.]

A.D. 1851, February 11.—N° 13,509.

PERKINS, Angier March.—" Constructing and heating " ovens."

A lining of hot-water pipes is made to surround the interior of the oven. These pipes are in rows connected at the ends to supply pipes. The ends of these supply pipes are coiled and placed in a furnace. Means for injecting water from above by a pump or otherwise are provided. On one supply pipe is welded a cup filled with fusible metal, on which rests the curved end of a rod connected with a damper in the furnace flue. If the pipe gets too hot, the metal melts, the rod falls, and the damper admits cold air to the flue. There is an "expansion tube" at the top, provided with a valve to prevent undue pressure.

[Printed, 1*s*. 8*d*. Drawing. See Repertory of Arts, vol. 18 (*enlarged series*), p. 324; Mechanics' Magazine, vol. 55, p. 157; Patent Journal, vol. 11, p. 258.]

A.D. 1851, February 24.—N° 13,530.

DIRCKS, Henry.—" Heating by gas."

A small gas pipe passes inside a larger pipe open at its end to admit air. At its discharge end the pipe is perforated or closed with metal gauze. The gas and air are ignited outside this end.

The larger pipe may terminate in a **T**, the cross bar of which is perforated. This method of heating may be applied to boilers, ovens, evaporating pans, etc.

[Printed, 1*s*. 6*d*. Drawings. See Repertory of Arts, vol. 18 (*enlarged series*), p. 344; Mechanics' Magazine, vol. 55, p. 178; Patent Journal, vol. 11, p. 268; Journal of Gas Lighting, vol. 2, p. 168.]

A.D. 1851, April 24.—N° 13,599.

SMITH, William, and PHILLIPS, Thomas.—" Heating, " ventilating, and cooking by gas."

A gas cooking range is described. In the centre is a roasting chamber, fitted with a burner the shape of its floor, hooks for hanging meat on, a dripping pan and a flue to carry off vapour, etc. On one side of it is the oven, heated by a burner in a space below, and having a space around it through which the products of combustion circulate. On the other side of the roaster is the boiler and, below it, the hot closet. Between the two is a space containing a burner which, as well as that below the boiler, is telescopic and jointed, so that it can be turned outside to light it. The boiler has a water supply which can be closed by a cock, when a pressure of steam for cooking is required, above the boiler are oven and places for broiling, etc., with burners under them. One or more of these burners may be used at once. Steam kettles communicating with the boiler may be used. The burners are made of pipes with holes bored in them below, so that the holes may not be clogged by grease, etc.

[Printed, 1*s*. Drawings. See Mechanics' Magazine, vol. 55, p. 359; Patent Journal, vol. 12, p. 62; Journal of Gas Lighting, vol. 2, p. 226.]

A.D. 1851, August 21.—N° 13,723.

ROBERTON, James.—Obtaining dyes, extracts, etc.

Fresh raw meat may be minced and put into vessels with perforated bottoms. These vessels are arranged so that cold water may be poured into one of them, and flow to all the rest in succession. In each vessel works a presser or piston, forced down by a screw or lever. As the water is squeezed out, the meat is stirred up, and more water put in. The whole of the nutritious part is thus extracted. The product is evaporated to dryness, and the powder resulting may be mixed with farinaceous substance and used as food, or mixed with flour and made into "biscuit bread." The gelatine may be extracted from the residue by similar treatment with hot water. Steam tubes or jackets may be used for this purpose.

For evaporating the extract, a series of hollow metal shelves is arranged so as to overlap one another. An endless chain carrying buckets lifts the liquid, and pours it over these shelves, which are heated by steam or otherwise. Or a hollow metal cylinder, heated within by steam, gas, etc., revolves with its lower part in a vessel full of the extract. A scraper bears against its surface to remove the dried product. Several cylinders may be used.

[Printed, 1*s*. Drawings. See Mechanics' Magazine, vol. 56, p. 177; also vol. 57, p, 321.]

A.D. 1851, September 5.—N° 13,741.

BORDEN, GAIL, junior.—Meat biscuit.

Meat is boiled down, and the extract strained and evaporated to the consistency of thick treacle. The evaporation may be effected in a pan with a steam pipe, or by the "vacuum process." The extract is made into dough with flour or pulverised biscuit. The dough is made into biscuits and baked. It may then be ground or not. If ground it may be made into soup by mixing it with cold water and afterwards boiling in water with salt, pepper, etc. Or the biscuit may be warmed and eaten.

[Printed, 4*d*. No Drawings. See London Journal (*Newton's*), vol. 40 (*conjoined series*), p. 270; Mechanics' Magazine, vol. 56, p. 217; Artizan, vol. 10, p. 113.]

A.D. 1851, October 22.—N° 13,783.

BOGGETT, WILLIAM, and PALMER, GEORGE HOLWORTHY.—"Obtaining and applying heat and light."

An oven and roaster combined is made of a chamber within an outer casing. For roasting, a burner within the inner chamber at its top is lighted, the products of combustion escaping through a hole above. For baking, a burner below and outside the inner chamber is lighted.

A roasting apparatus has a set of burners at bottom. Below the meat is a dripping pan, and between the gas and the pan is a vessel of water in connection with a boiler.

A burner is placed in the middle of a cooking apparatus. Below are shelves to hold meat, etc., and a dripping pan. Above is an oven surrounded by a flue which carries off the products of combustion.

Below an oven gas burners are placed; pipes lead from them and convey heated air round the oven.

Evaporating vessels may be made with conical or other shaped passages through which air heated by gas burners flows.

Water, etc., may be heated by being passed through spiral tubes heated by gas burners. The spiral may be made of circular plates cut radially and soldered to spiral wires.

A central water tube may be surrounded by gas tubes.

A boiler is made with spaces through it, up which the products of combustion from a gas burner pass. These spaces form parts of a ring near the outer casing of the boiler.

A saucepan is fitted with a burner soldered to its bottom. The holes of the burner are at the underneath side.

A gridiron is made with hollow bars, within which gas is admitted. The bars are made of metal with bent edges which overlap each other, having a small passage for the escape of gas. Grooved bars below to receive the fat may be added.

[Printed, 1*s.* 8*d.* Drawings. See Mechanics' Magazine, vol. 56, p. 339; Journal of Gas Lighting, vol. 2, p. 336.]

A.D. 1851, October 23.—N° 13,785.

HENDERSON, DONALD.—"Generating gas."

A gas retort and other gas generating apparatus may be attached to a kitchen range. The retort is over the fire, and a hot-plate is fitted over it and over the oven, which is beside the fire and has a flue surrounding it which may be opened and closed by a damper. The boiler extends along the range at the back.

The remainder of the Specification does not refer to this series.

[Printed, 1*s.* 4*d.* Drawings. See Mechanics' Magazine, vol. 56, p. 358; Engineers' and Architects' Journal, vol. 15, p. 144; Journal of Gas Lighting, vol. 2, p. 336.]

A.D. 1851, December 5.—N° 13,842.

THOMPSON, JAMES, and ALTREE, FREDERICK.—"Heating "ovens."

Bakers' ovens are heated by gas. The gas is supplied by a pipe surrounded by a larger pipe supplying air. Any sort of burner may be used. When the oven is sufficiently heated, the pipes are withdrawn, the gas pipe being properly jointed for the purpose.

[Printed, 6*d.* Drawing. See Mechanics' Magazine, vol. 56, p. 477.]

A.D. 1851, December 8.—N° 13,844.

FONTAINEMOREAU, PETER ARMAND le Comte de.—(*A communication.*)—"Apparatus for kneading and baking bread and "other articles of food."

The first part of the invention consists of a kneading machine. A shaft is revolved in a semi-cylindrical trough. To this shaft curved arms are attached; these arms are joined at their ends by longitudinal pieces which carry other short arms intermediate of the first named. Any power may be used to drive the machine.

An improved oven is next described. It is fitted with a turntable, upon which the material to be baked is placed. It is turned by suitable gearing from a crank outside. It may be raised and lowered by screws. The furnace is below the turntable, and flues radiate from it and surround the table. The top of the oven is made double, and there may be above it a reservoir for hot water.

[Printed, 10*d*. Drawing. See Mechanics' Magazine, vol. 56, p. 498.]

A.D. 1851, December 8.—Nº 13,847.

ALEXANDER, Isaac.—"Preparing and treating certain kinds "of cheese, whereby to render the same applicable to a variety of "culinary and other domestic purposes."

[No Specification enrolled.]

A.D. 1851, December 11.—Nº 13,857.

MASTERS, Thomas.—Securing bottles, etc.

Amongst the various matters contained in this specification, is a method of "closing of ice moulds, jelly moulds, pudding "moulds, and other vessels used in confectionary and culinary "purposes." The lid of the mould fits on flush, and an india-rubber ring is placed over the joining. The mould may be of any shape, but the rim must be even, to allow the ring to fit close.

[Printed, 1*s*. 4*d*. Drawings. See Mechanics' Magazine, vol. 56, p. 509.]

A.D. 1851, December 19.—Nº 13,865.

WILKES, Samuel.—"Kettles, saucepans, and other cooking "vessels."

Saucepans and other vessels are made by being stamped out in a succession of dies, each deeper than the preceding one. They are then tinned and finished in the usual manner, having handles attached. The metal preferred is "Muntz's metal," 40 parts zinc to 60 parts copper.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 20 (*enlarged series*), p. 100; Mechanics' Magazine, vol. 56, p. 516.]

A.D. 1852, April 27.—N° 14,090.

EXALL, William.—(*Partly a communication.*)—"Making bread "and biscuits."

For kneading dough, a hopper is fixed to one end of a horizontal trough, in which works a spiral kneader. The dough is discharged through a suitably formed orifice at the other end. For stamping and cutting biscuits, the dough is passed between two flattening rollers to an endless cloth by which it is conveyed to the cutters. These are fixed on a frame working vertically, in which are also, if required, stamps. This frame has a descending motion given it by a crank, and the cloth has also a corresponding intermittent action. A board below holds the cloth and dough against the cutters. The scrap dough passes up and adheres to the outside of the cutters and is removed by hand. The biscuits pass along and are delivered by the cloth. The stamps may be arranged to print the row that has just been cut.

An oven "consists of a number of tubes formed of clay or "metal, and of any suitable section, ranged over a fire in a "chamber or flues after the manner of gas retorts. These tubes "may have doors to one or to both ends."

[Printed, 1*s*. Drawings. See Mechanics' Magazine, vol. 57, p. 376.]

A.D. 1852, September 3.—N° 14,283.

JAMES, William Henry.—"Heating and refrigerating."

Amongst other matters, ovens are made with floors of shelves of "cellular, vesicular, tubular, or other shaped plates" of metal, fire-clay, or other materials. Through these plates circulate "heated air, gasses, or vapours." "Two or more separate circu-"lations" of hot air, etc. may be used. Pipes, etc. may be employed, to be placed around the sides and top of the oven. The ends of these pipes pass through the fire.

"Steam surcharged with caloric" is used in the same way for heating "ovens and cooking apparatus."

[Printed, 8*d*. No Drawings. See Mechanics' Magazine, vol. 58, p. 236.]

A.D. 1852, October 21.—N° 14,333.

BOGGETT, William, and PETTIT, George Brooks.—"Ob-"taining and applying heat and light."

A roasting stove is made of an oven in conjunction with a fire place in which a gas flame impinges upon a mass of asbestos.

The oven is surrounded by flues. At the other side of the fire is a hot closet. The gas burners may be made of perforated metal balls drilled with small holes.

A gas burner as above described is placed before a reflector at the back of a roasting chamber. Above this chamber is a hot closet; above the burner a plate on which boiling may be done. A similar roaster may be made cylindrical, with one end curved to act as a reflector.

A roaster may be made of a metal vessel with a perforated channel along one angle. Or this burner may extend on three sides of the vessel, and there may be vessels above for boiling.

A roaster may have a set of burners above it with a series o bars above them, on which saucepans, etc. can be placed.

A small pipe may be attached to the side of a cooking vessel, and led down under its bottom where a burner is fixed.

For heating water, etc. a boiler is made, with square tubes crossing at right angles through its whole interior. The flame from a gas burner or other fuel passes along these tubes.

For obtaining a large heating surface, a spiral flue passes under a circular plate.

"A series of air and gas burners," "placed side by side," is fitted over a roaster. Above the burners is a hot-plate. Roasting may also be carried on at the side.

A gridiron is made of gable-shaped bars, with shelving plates below them, over perforated gas tubes.

A single burner enclosed in a wire-work chamber is placed in a roaster. Over the roaster is a hot closet, and the flue from the burner passes upwards to heat a boiler.

A square roaster is divided by a double partition containing gas. The partition is perforated, and the flame heats both chambers at once.

[Printed, 1*s*. 2*d*. Drawings. See Mechanics' Magazine, vol. 58, p. 396.]

PATENT LAW AMENDMENT ACT, 1852.

1852.

A.D. 1852, October 4.—N° 200.

WELCH, Edward. — (*Provisional protection only.*) — Fire-places, etc.

The only part relating to the present series runs as follows:—

"An oven over the top of a fire. I make an iron box open at
" the bottom to fix over the fire, and into this box I fix an oven.
" In the outer iron box I have a small door to admit of feeding
" the fire, and a chimney at the top to carry off the smoke."

[Printed, 4*d*. Drawing.]

A.D. 1852, October 9.—N° 324.

RESTELL, Thomas.—Improvements in watches, etc., partly applicable to roasting jacks.

The invention relates, amongst other matters, "firstly, to im-
" provements in the method or methods of constructing an
" escapement for chronometers, watches, and clocks (also applic-
" able to roasting jacks), which consists in the production of
" an alternate motion from the continuous revolution of a cam,
" so made that the axis passes somewhat out of the centre of a
" semicircular plain, this cam actuating a lever in which are fixed
" two studs or pins, between which the cam or plain acts."

"Fourthly, to the employment of cams as above described,
" whether circular or semicircular, or formed like any sector of
" a circle, but so made that the axis passes somewhat out of the
" centre when applied to roasting jacks, in place of an escape
" wheel or wheels with pallets."

"Tenthly, to the use of a jack in the form of a watch, with a
" brass knob or handle upon one of its sides, by which the
" necessity of a key is obviated."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1852, October 12.—N° 345. (* *)

PERKES, Samuel.—(*Provisional protection only.*)—" Improve-
" ments in navigable vessels and propellers."

The inventor proposes, among other matters, "to use the "smoke from steam vessels, and convert the same into gas, and "light up vessels with the same in certain cases where required, "or use other materials for generating and using gas on board "ships or sailing vessels for lighting and cooking and other "useful purposes, instead of ordinary fires & candles."

[Printed, 4*d*. No Drawings.]

A.D. 1852, October 13.—N° 369.

SUTTIE, THOMAS.—"Roasting apparatus."

A jack is actuated by water power. A case is fitted on the mantelpiece or elsewhere, which "contains a small breast or other "water wheel set on a horizontal axis in the usual way, being "made to revolve at the required rate by the water flowing into "the buckets from a small pipe. The axle of the wheel projects "at right angles to the line of the mantelpiece through the case, "and has upon its end a small bevil pinion in gear with a bevil "wheel set on the top of a short vertical spindle carried in "adjustable bearings on the front of the mantelpiece. This "spindle is connected by means of a universal joint with the "suspending string or wire to which the meat is hung, so that "as the water wheel revolves, the meat is driven round at a slow "rate, as required in cooking. If the meat is covered in or "protected by a 'despatch' apparatus or portable reflecting oven, "the top of such apparatus is fitted with suitable wheel work "working in connection with the revolving spit or meat sus- "pender, the movement of such gearing being communicated to "a small bucket or fluid-lifting arrangement in the interior of "the dispatch, so contrived as to elevate the gravy at periodical "intervals for basting the meat."

[Printed, 8*d*. Drawing.]

A.D. 1852, October 14.—N° 383. (* *)

GRANT, DONALD.—"Improvements in the means of applying "the heat derived from the combustion of gas."

Part of this invention relates to utilising the heat in cooking stoves, "by surrounding a burner (such as that which is ordi- "narily employed for heating a stew pan or boiling a kettle) "with a coiled pipe connected at both ends with a boiler or other "receptacle for liquid, and by this means" creating "a circula-

"tion in the liquid at the expense of the radiated heat which "would otherwise be lost, the vessel which is set above the "burner being heated by the direct action of the flame."

The inventor also uses glass or earthenware "panels formed "of slips not deeper than two or three inches," to be fitted into the frame of the stove to prevent radiation of heat; and applies double doors to the cooking stove, the inner one being made of glass, and the outer one of earthenware.

[Printed, 8*d*. Drawing.]

A.D. 1852, October 19.—N° 434.

GREATHEAD, Thomas William, HILLIARD, James, and REYNOLDS, John George.—(*Provisional protection only.*)—"Heating, cooking, and warming."

The invention "consists in using in a suitable stove (most of "the closed stoves if provided with the flues being suitable), an "unconsumable composition consisting of pipe clay or other clay "(or clay and dung), hay, straw, or suitable vegetable substance "and water, or of pipe clay or other clay, muriatic or other acid "and water, whiting and other calcareous substance, and alum or "compounds of alum, which is compounded together, and then "calcined by great heat, when it becomes a spongy mass, which "being placed which a suitable stove or apparatus for heating or "cooking, such as shall allow fire from a gas burner or other "suitable flame supplier to impinge upon and play through the "above-named mass so as to cause it to become hot, it will then "afford greatly increased heat so as to effect the purposes of "heating, cooking, or warming, as the case may be."

[Printed, 4*d*. No Drawings.]

A.D. 1852, October 20.—N° 453.

ROBINSON, Frederick Richards.—"Gridiron or instrument "for cooking steak or other articles."

Below and alternating with the gridiron bars are placed "spouts" or channelled bars, which catch the gravy, etc., from the meat. These are connected with a similar channel which runs round the outside of the gridiron. The frame of channels and the frame of the gridiron are hinged together at one end by studs which take in to suitable projections.

[Printed, 6*d*. Drawing.]

A.D. 1852, October 20.—N° 464.

GILBERT, John, and NYE, Samuel.—"Mincing meat and other substances."

Two machines for this purpose are described.—The first is composed of a short cylinder, the disc at one end of which is fixed, while the other receives motion from a handle. On the fixed end are arranged a number of concentric knives, which can be removed for sharpening. On the rotating end are similarly arranged a number of studs or projections "affixed in curved directions "from the centre." These force the meat, etc. against the knives, and cause it to be cut by them. The material is supplied from a hopper above and at the side of the machine, and when minced is discharged through an opening in the centre of the fixed disc.

In the second machine the cylinder is longer, and the knives are fixed to its sides, instead of its ends, in lines parallel with the axis. The studs are also fixed in a double helix on a spindle fitted to the rotating end of the cylinder.

[Printed, 6*d*. Drawing.]

A.D. 1852, October 21.—N° 469.

HOPPEN, Robert.—"Apparatus for mincing meat."

"The knives are fixed parallel in a frame," "and the frame is "caused to rise and fall." "There is a plate suspended from "the upper part of the machine by rods, such plate has cut in it "as many slots or openings as there are knives in the machine, "through which slots or openings the knives work, and the "slots are only made of a size to admit the knives moving freely "through them, the plate thus acting as a scraper on each side "of each knife or blade." "As the knives rise after chopping "or mincing the meat on the block or surface below, they will "pass through the slots or openings, and any meat which may "be between the knives will be forced down from between them. "The plate is fixed or retained in such position that the cutting "edges of the knives or blades do not rise above or beyond the "plate, but only to the upper surface thereof."

[Printed, 4*d*. No Drawings.]

A.D. 1852, November 1.—N° 591.

EVANS, George.—(*Provisional protection only*.)—Gridiron.

The gridiron has fluted bars, and there is "a second or sup-"plementary *gridiron*, having the fluted bars inserted over the

" interstices of the under gridiron, into the fluted or channeled " bars of which the edges of the upper flutings dip sufficiently to " convey the fat and juices of the meat flowing therefrom, thus " forming a peculiarly constructed compound gridiron."

[Printed, 6*d.* Drawing.]

A.D. 1852, November 5.—N° 650.

WOTHERSPOON, James.—"Improvements in the manufac- " ture or production of confectionery, and in the machinery, " apparatus or means employed therein."

"This invention relates to the manufacture of various kinds " of confectionery, such as comfits, lozenges, barley sugar, and " other similar articles. Instead of the ordinary modes of " boiling the sugar, gas jets or heated air is used as the heat- " ing medium. The pearling pans, arranged to vibrate on " a fixed centre, being actuated from an overhead crank to " give the required vibratory motion as used for pearling and " otherwise manufacturing the goods, the sugar being supplied " from two or more vessels suspended above it, and moved in " the same way. Such pans, or the rotatory pans known as " 'Duncan's Patent Steam Comfit Pans,' are also made to " act in a superior manner by forming a system of free ven- " tilation to carry off the vapour, the rotatory pan being sup- " ported on each side instead of overhanging on one side. The " materials are prepared for lozenges with the assistance of a " series of tubs or mixing mills, a squeezer and a cutting " machine. The mixing apparatus resembles a pug-mill as used " for working clay, and from this mixing apparatus the materials " are passed to a piston squeezing box, like a brick-moulding " machine. Here the matters under treatment are forced " out through a die, or passed between rollers, to produce a " sheet, in which state it passes to the cutting apparatus, being a " series of punches arranged in a frame, and made to cut down- " wards upon the sheets of material as the latter are traversed " forward upon the cutting boards. The cutters each revolve " upon their axis, so that when they descend they cut through " the sheet, and carry up the several lozenges on rising. Then " an oscillating board is made to work in at each cutting " stroke, beneath the elevated cutters, and the lozenges are " pressed out of these cutters or punches by the descent of small " spindles. The lozenges thus fall on the oscillating board, and " are carried back free of the cutters, and tipped over upon an

" endless traversing cloth for completion in the usual way. To " clean the cutters steam jets are used, or brushes are adapted to " work over the outsides, whilst the interior surfaces are scraped " by the descending spindles, moisture or steam being introduced " into the interior of the internal spindles as a further cleanser."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1852, November 10.—N° 702. (* *)

POWELL, Joseph Tringham.—Manufacture of biscuits and other matters.

"The material employed are first mixed by a suitable machine " and delivered in the mixed state to an endless web which carries " the dough to rollers where it is pressed and polished on one " side; thence the sheet of dough passes between a second pair " of rollers, where it is polished on the other side. The sheet of " dough is then cut into biscuits by ordinary machinery, and the " same are received on to another endless web which conveys " them to the oven, where they are received on to trays, and by " the trays they are moved thro' the oven, where they are baked " and dried, and are then delivered from the trays thro' an " opening out of the oven."

[Printed, 8*d*. Drawing.]

A.D. 1852, November 13.—N° 738.

COAD, Richard, and COAD, John Peers.—Fire-places.

"The apparatus consists of an open fire-place with a perforated " back, and a reservoir to supply the fuel above the fire. All the " air for supporting combustion has to pass through the com" bustible materials in its passage from the front to and through " the perforated back into a chamber behind, denominated the " hot-air chamber. From this chamber the heat is applied for " whatever purpose it may be wanted, viz., either for cooking " warming, steaming, or ventilating, &c. For cottage pur" poses, when the chimnies are small, an apparatus consisting " of a cast-iron plate is used, with suitable holes and lids; and " on each side and at the back are narrow flues to the full extent " of the plate, or nearly so; the plate is arched over, by which " it may be used as a hot plate for cooking, or the entire area of " the enclosed space may be used as an oven. In the centre of " the arch which covers the plate is a narrow pipe or flue, open" ing into the chimney for the purpose of ventilation. This pipe

" or flue, which extends from the front to the back of the appa-" ratus, forms a separation for the two arched flues. The separate " flue forming the back of the oven goes direct into the chimney; " each of these flues and the ventilator is furnished with a valve " attached to a rod which extends to the front, for the purpose " of regulating either the draught or the ventilation."

[Printed, 10*d*. Drawings.]

A.D. 1852, November 15.—N° 747.

REYBURN, Robert.—" Lozenges and other confections."

The following is the description given:—

" This invention consists in applying milk, cream, and eggs in " the manufacture of lozenges and other confections."

" I first concentrate the milk and eggs by evaporation, at a " temperature of not more than one hundred and ten degrees of " Fahrenheit. For this purpose, I use slate slabs, or copper " plates, placed over a cistern containing hot water or steam. On " these slabs or plates the milk or eggs is spread to the depth " of a quarter of an inch, more or less, adding an additional " supply as it becomes thickened to the consistency of thin " treacle. When the several additions amount to the thickness " of a quarter of an inch, more or less, of the consistency of thin " treacle, it must be removed from the slab or plate with a metal " or wooden spatula, and (this concentrated milk and eggs, either " separately or together, in any proportion), mixed with an equal " weight, more or less, of finely pounded or ground sugar, and " about one-tenth, more or less, of the weight of this mixture of " gum arabic, or other mucilage used by confectioners in the " manufacture of lozenges and other confections; the flavouring " substance, if any is wanted, is then to be added to taste; and " this compound is to be made into lozenges, or any other form " of confection that may be required, in the usual way."

[Printed, 4*d*. No Drawings.]

A.D. 1852, November 15.—N° 754.

RAE, William Fraser.—" Gas heating and cooking appa-" ratus."

A cooking stove is made with an inner and outer casing, leaving an air-space between. Below the inner casing is a space in which are the gas burners, covered by a curved screen. The pipes to supply gas are led round this space, so that the gas is heated before it enters the burners. The products of combustion pass between the two casings and away by a flue at the top. Within the inner casing are shelves and from the top is suspended a hook for holding articles to be roasted. Above this is a chamber divided into compartments in which are gas burners mounted on swivel joints. On the top of this chamber, boiling, stewing, etc., may be carried on. The lower part of the chamber is perforated to admit air. On the top may be placed a steaming vessel; it consists of a kettle to be filled with water, concave at bottom, and with two pipes to admit the heated air to pass through it. The top has holes to receive smaller cooking vessels.

[Printed, 8*d*. Drawing.]

A.D. 1852, November 26.—N° 875.

HUDAULT, Armand Jean Constantin.—(*Provisional protection only.*)—" Leaven."

For 312 lbs. of flour, 10 lbs. of rice flour, and 10 lbs. of "ger-" minating barley," or other suitable "germinating cereal," are separately mashed up in an equal weight of water. The two are then thoroughly mixed, left to stand three or four hours in a covered vessel, and then left to cool in the open air. To make a more powerful leaven, double the amount of barley may be used, and "250 grammes" of yeast, and 10 pints of warm water added to the leaven when it is poured on the dough.

Or 625 grammes of sugar may be melted, and flour then stirred in. 10 lbs. of wheat flour is mixed with 15 or 20 pints of water and the whole mixed. A pint and a half of brandy is added.

[Printed, 4*d*. No Drawings.]

A.D. 1852, December 1.—N° 924. (* *)

SLATER, William.—" Ovens and apparatus for baking."

The biscuits, bread, and other articles are baked by passing them "along and through a heated tube of earthenware; this " tube forms the oven; it is of considerable length, and the " biscuits or other articles are slowly traversed through it from " end to end, at such a rate as will allow of the baking being " completed during the passage. The biscuits are carried on " trays set on travelling chairs, or the trays may be made into an " endless web or chain." An apparatus is attached externally for indicating the heat of the oven. Along the baking tube is a copper rod, fixed at one end and connected at the other to a spring contained in a box. The box has a covering of non-conducting material about it. The movements of the end of the rod are transmitted to the index of a scale which shows the heat.

[Printed, 6*d*. Drawing.]

A.D. 1852, December 16.—Nº 1073.

COINTRY, André.—" Bread and biscuits."

In mixing the dough, water mixed with pounded wheat is used instead of pure water. The best way of preparing the liquid is by mixing the wheat and water (20 lbs. wheat to 70 quarts water), and boiling them for twenty minutes. Steam may be employed in a " double-bottom copper, similar to those used for the refining of " sugar in vacuo." The liquor is then strained in " knitted " cotton bags," and pressed. It is then ready for use.

[Printed, 4*d*. No Drawings.]

A.D. 1852, December 22.—Nº 1138.

VICARS, Thomas, the elder, and VICARS, Thomas, the younger.—" Baking ovens."

The oven is divided vertically by a wall, running nearly from front to back, but leaving space at the back for the air to pass through, and a space in front closed by a damper. The fire is at one front corner and the flue at the other front corner, so that the heated air traverses up one partition and down the other. The oven is also divided into horizontal chambers, from one to the other of which the hot air flows, through passages at the sides. For charging the oven, rails are laid on the floor of each storey, and run on a platform outside For depositing bread, etc. on the carriages which run on these rails, an arrangement of shelves is used. These shelves are pivotted on parallel rods, so that in whatever position the rods are inclined, the shelves remain horizontal. By this means the bread on the shelves may be lowered on to the carriages and then, by a lever which moves one of the supporting rods, the shelves are inclined and deposit their contents on the carriages, which are run into the oven.

[Printed, 8*d*. Drawings.]

1853.

A.D. 1853, January 8.—N° 58.

JOHNSON, John Henry.—(*A communication.*)—(*Provisional protection only.*)—" Stoves for cooking."

The invention "consists in forming the stove entirely of cast " iron, the plates forming the sides being clasped together with- " out the aid of rivets or buttons, or any other fastening; by " this means great portability and facility of erection are obtained. " The fire, which is contained at one end of the stove, heats the " whole of the interior; the flame and heated air circulating either " through the various passages in the sides of the stove, or may " be directed at once to the chimney. Either coal or wood may " be employed as fuel in the stove. In using coal a peculiar " grate is employed, the bars of which are made singly in place " of being cast altogether in one piece; by this means they may " be raised up singly or in pairs according to the size of coals " employed. Should wood be used, a second grating is placed " above the last mentioned one. The flame and smoke may be " separated on leaving the fire, the former circulating through " the stove for the purpose of effectually heating all parts, and " the latter made to pass directly to the chimney. The stove " contains a chamber which may be used either as an oven, or " for the boiling or frying of meats. A boiler for heating water " is contained in a portion of the stove. The fire-door opens " down to a horizontal position so as to afford a support for " anything requiring heating, and admit of the roasting of a " joint of meat."

[Printed, 4*d*. No Drawings.]

A.D. 1853, January 10.—N° 64. (* *)

FITCH, Michael.—" Improvements in ovens."

" This invention consists of combining a series of baking " compartments one above the other, the partitions or divisions " between the successive compartments being made hollow, so " that the heat from below may pass into such hollow space and " give off the heat to the articles baking below, and also to those " in the compartment above, there being flues or passages between " the successive hollow partitions or divisions, so that the heat

" rising from the lower parts of the series may pass into the next " and the next, so long as the heat remains sufficient to bake."

[Printed, 6*d*. Drawing.]

A.D. 1853, February 3.—N° 301.

CROWTHER, John, and **ALSOP, Joseph**.—(*Provisional protection only.*)—" Baking bread."

Two cylinders are mounted parallel to each other on friction wheels, and have gearing by which they are revolved. They are open at the ends, and have within them appliances for heating, by gas or otherwise. One end of each is closed by a sliding door, the other is fitted with a pipe leading to the chimney. Above these cylinders is a trough fitted with valves. Dough falls from it upon the cylinders, becomes baked, and is received by an endless apron working over cylinders which conveys it to a table. On the table is a knife worked from the rollers, which cuts the bread into pieces of suitable size. One of the cylinders is provided with "a bevel-edged bar" to act as a "cleaner." It has a "sliding motion along the face of the aforesaid cylinder" given it by an excentric.

[Printed, 4*d*. No Drawings.]

A.D. 1853, February 4.—N° 312.

LETTS, George.—Mincing meat and filling sausages.

A cylindrical case is hinged down the middle along a line parallel with the axis. Within revolves a barrel on which are fitted one or more spiral lines of cutters. Parallel with the axis of the barrel and along one side of it, is a comb or slotted plate, through the slots in which the cutters pass. Above this plate, at one end of it, is a spout through which the chopped meat, etc. is discharged. On this sausage skins may be fitted, so as to be filled. At the other end of the machine is a hopper through which the materials to be treated are supplied. Motion is given to the barrel by a handle on its axle. The slotted plate may be fitted loose, to be removed for cleaning.

[Printed, 6*d*. Drawing.]

A.D. 1853, February 14.—N° 386.

LAMBERT, Claude Joseph.—(*Provisional protection only.*)— " Bread and biscuits."

"The invention consists in introducing into dough as usually " prepared, a certain quantity of warm water containing some " chlorhydrique (muriatic acid) in the proportions of about $\frac{125}{100}$ for " about 4 lbs. 14 ozs. of dough.

"The further operations for making the bread are carried on " according to the usual process."

[Printed, 4*d*. No Drawings.]

A.D. 1853, February 24.—Nº 463.

GREEN, John.—"System of cooking."

A moveable reflector slides in a semicircular roasting screen. It may be fixed at any height by a screw. The screen has "a deep " flange underneath, and an opening or door thereon." On the reflector is a "shifting self-basting pan" "arranged with stops " or perforating screws, for regulating continuous dripping of the " fat or gravy." The gravy runs from the dripping-pan into a receiving can below "for removing and replenishing the basting " pan." A "heat conductor, with sliding and hanging hooks" fits on to the front of the grate. It has "a moving damper" "on " the top to regulate the heat, and a door at the side for the con" venience of warming plates, &c., and so contrived to increase " and inclose the whole of the heat emanating from the front of " of the fire to the meat, as to prevent ashes or dust falling " into the dripping-pan." This "heat conductor" may be detached from the roasting screen, and "having shifting shelves," it may be used as an oven.

[Printed, 4*d*. No Drawings.]

A.D. 1853, February 26.—Nº 490.

THORNTON, Ebenezer.—(*Provisional protection only.*)— " Kitchen boilers and flues for ranges."

The boiler is to be fixed at the back of the fire. It is fixed by screws within an outer case, so as to leave a space all round it. Through this space the products of combustion pass into a flue above. The upper part of the boiler is shaped so as to surround this flue on three sides. The lower part of the external casing is lined with fire-brick. The flue has a damper. Suitable pipes for drawing off and supplying the water are provided.

[Printed, 6*d*. Drawing.]

A.D. 1853, March 2.—Nº 517.

HALL, Charles Henry.—" Cooking by gas."

The apparatus is varied, according as coal gas or the vapour of a suitable spirit is burnt. If coal gas is used, it is admitted from a pipe into a closed chamber with holes at the bottom. Through these holes it passes into a surrounding cylinder, the sides of which are perforated to admit air. The mixture of gas and air is ignited, and the flame strikes against a metal disc fixed over the cylinder. This disc becomes heated, and " tends to con-" sume those particles of gas which may have been separated, " and oxydises any portion of the gas which may have escaped " undecomposed." Above this disc is fixed a trivet to support the cooking vessel.

If spirit is used, in place of the supply pipe there is a receptacle for the spirit. At the top of this receptacle is a saucer with openings communicating with the receptacle. The connecting passage may be partly closed by a screw, which, when removed, leaves a passage to the air. The vessel is filled with spirit, the air escaping through the screw hole, the screw is replaced, and the spirit remaining in the saucer ignited. This heats the metal, and volatilises part of the spirit in the vessel. The gas thus produced passes up and becomes ignited. The remainder of the apparatus is like that before described. If preferred, the vessel of spirit may be distinct from the heater, and connected to it by a tube filled with cotton, so that the flow of spirit is equalised.

[Printed, 10*d*. Drawings.]

A.D. 1853, March 2.—Nº 520.

SOYER, Alexis.—(*Provisional protection only.*)—" Preparing " and preserving soups."

The following is the description in the words of the inventor: —" My improvements in soups refer to gravy soups made with " rice, vermicelli, sago, and other esculent grains, vegetable gravy, " soup of carrots, turnips, and other vegetables, individually or " collectively, beef broth, and to soups of chicken, turkey, turtle, " game, and other such edibles, also to oyster and other fish " soups.

" As a kind of basis for my several soups, I prepare and keep " in stock a soup which I term Osmazome; it may also be eaten " seperately. I prepare this of meat, consisting of leg of beef,

" knuckle of veal, ham, and calves' feet, which I stew together for " hours, adding onions, butter, and water in proportion. I seperate the fibrous part from the gravy, which is reduced by " boiling, and afterwards deposited in bottles or other proper receptacles, which are subjected to heat and sealed and in which " it will keep till required. In preparing the several soups before " mentioned, their several ingredients properly treated are mixed " with a proportion of the osmazome, adding other condiments, " according to palate or nature of the soup in preparation. These " may be prepared with and kept as osmazome, or prepared with " osmazome when required."

[Printed, 4*d*. No Drawings.]

A.D. 1853, March 7.—N° 573.

LITTLE, JOHN. — (*Provisional protection only.*) — " Cooking " apparatus."

"The apparatus consists of a casing of cast or malleable iron " or other material, internally lined with fire-brick or other " material, or it may not be lined, and forming an oven or cooking chamber. In a convenient part of this is placed the fire-grate, either divided off from the oven by a partition or wire " screen, or entirely left open. The oven is thus heated by the " fire being inside or partially inside of the oven or cooking " chamber. The casing is formed with a double top, the intervening space forming the flue, partitions being so placed as to " direct the heat to all parts, and finally to the chimney, situated " at a convenient part of the top or end of the range, which is " fitted with a damper in the usual way; or the casing may have " only a single top without a flue, and the fire may have only one " part of it, or the whole, brought into contact with the oven. " The fire, thus placed within or partially within the oven or " cooking chamber, may or may not have a wire or shade or " other apparatus to lessen the heat when required, or to protect the oven from ashes or dust. A boiler or boilers, hot " closets, and other apartments, which may be subdivided, are so " placed as to be heated either from the flue or from the fire. " The smoke is carried off by a chimney," in which is a damper. The apparatus may vary in size and shape, and may have ovens, boilers, hot closets, etc. connected with it. A roasting jack may be attached.

[Printed, 4*d*. No Drawings.]

A.D. 1853, March 29.—N° 751.

GRAY, John.—(*Provisional protection only.*)—" Application of " heat for baking."

"This invention relates to the use of heated air for heating " the ovens or receptacles in which bread, biscuits, and other " articles are placed for being baked. Instead of using the direct " heat of ordinary fuel, wherein the smoke and the dust from " the fuel has liberty to mingle with the articles under treatment, " it is intended, by this invention, to heat a current of air in a " separate apparatus, and then force the air so heated through " pipes or ducts into the oven. By this system a great heat can " easily be secured without any objections from the presence of " smoke and dust, and the baking operation is more effectively " conducted than heretofore."

[Printed, 4*d*. No Drawings.]

A.D. 1853, April 8.—N° 845.

SMITH, William Ford. — (*Provisional protection only.*)— " Vessels or utensils for heating liquids."

The invention "is particularly applicable to portable vessels, " or vessels or utensils used for domestic and other purposes; it " is likewise applicable to vessels which are permanently fixed. " It consists in arranging flues or surfaces in the interior of " vessels or utensils, which shall expose a greater area or surface " to the action of the heat than is at present obtained, and thus " communicate the heat to the liquid more rapid and economi- " cally." "The flues or surfaces may be arranged of various " forms."

[Printed, 6*d*. Drawing.]

A.D. 1853, April 9.—N° 859.

CRESSON, William Penn.—(*A communication.*)—" Lathes."

" The invention applies to that class of metal wares, such as " saucepans and like articles, whose surface has to be smoothed " by cutting instruments, particularly on the inside, to prepare " them for tinning or other coating.

" And the improvements relate, first, to means of supporting " and controlling the motion of such article during the required " operation, so that if it be of an oval or other figure out of a " circle, it may have its rotary or concentric motion changed into

" that corresponding with its figure, in order that the cutter " having begun, say, at the centre of the bottom, inside of the " article, may, by a gradual helical or such like movement of the " article, act upon the bottom surface thereof, until the sides " begin to be operated upon by the side of the cutter, when the " rotary motion of the article is continued, that of the figure of " the side of the article being cut.

" By one arrangement this movement is accomplished by a " cam, actuating a lever with a sliding centre of motion, moved " by a screw or otherwise, the lever acting upon rocking arms " which support the mandril carrrying the article being prepared.

" By another arrangement the chuck or other fixture of the " article has a compound movement given to it, by which this " gradual variation from a concentric motion is obtained.

" Also to applying spring or other pressure lengthwise of the " mandrils supporting the articles, and which have, for that purpose, slight play in their bearings, in order to compensate for " any irregularities in the bottom surface, or that surface of the " ware which is across the axis of the mandril, and enable the " cutter to pare off an uniform quantity.

" Secondly, to means of supporting and actuating the cutter. " To supporting the cutter on compound levers, which admit, " during its traverse motion, of its following the side figure of " the article being cut. And to keeping the cutter bearing with " uniform pressure against such side surface by spring or other " pressure capable of adjustment, in order to an uniform quantity " being pared therefrom; also to the application of a roller in " connection with the cutter, to keep the cutter acting as nearly " as possible at the same angle."

[Printed, 1*s*. Drawings.]

A.D. 1853, April 14.—N° 905. (* *)

HAIGH, Thomas. — (*Provisional protection only.*) — "The " cleansing of pans and other culinary utensils."

" Instead of the usual domestic articles made of cloth, bristles, " or similar materials, as brushes, mops, or hand cloths for cleansing kitchen and other utensils," it is proposed "to make an " instrument for the said purposes to consist of leather and wire, " india-rubber and wire, or gutta percha and wire, fastened to a " handle of any convenient shape or construction, and made of " wood of any suitable construction or material. The said wire

" may be made of any suitable metal, amalgamation of metals, or " any metal plated or coated with other metals."

[Printed, 4*d*. No Drawings.]

A.D. 1853, April 27.—N° 1016.

TURNER, George, and HOLLOWAY, Robert.—" Substitute " for yeast."

A preparation to be used instead of yeast for various purposes is described. The ingredients and proportions are as follows:—

	lbs.
Tartaric acid - - - -	120
Bicarbonate of potash - - -	144
Pounded loaf sugar - - -	30
Ground Patna rice - - -	116
Arrowroot - - - -	30
Or ground Carolina rice - -	60

The Patna rice and the acid are mixed, and passed through a sieve. The mixture is allowed to stand for 28 days. The arrowroot or Carolina rice, sugar, and bicarbonate of potash, are mixed and put to stand for the same time. The two mixtures are then combined and sifted. To make unfermented bread, to every lb. of flour a teaspoonful of the mixture is added. The dough is made with cold water, and baked in a quick oven. For pound cakes the same proportions of flour and the compound, half the usual quantity of butter, currants, and sugar. For pastry, half a teaspoonful of the compound to each lb. of flour. For biscuits, etc., the same proportions as for bread.

[Printed, 4*d*. No Drawings.]

A.D. 1853, May 18.—N° 1224. (* *)

RYE, Wharton.—" Kitchen ranges or fire-grates."

The first part of this invention consists " in forming the bars of " wrought iron, placing ends thereof in the moulds," and casting these wrought-iron bars into the front plates of the fire-grate at once.

In making oven door hinges, " upon the outer edge of the side " plate of the oven is cast a bead or moulding, corresponding " with the hinge. This bead is rather shorter at each end than " the oven door, and has a wrought-iron pin cast in it, passing " through the centre and projecting at each end. Upon each of

" these projecting ends the eye of a hinge is placed and the " hinge is then rivetted to the oven door."

[Printed, 4*d*. No Drawings.]

A.D. 1853, May 25.—N° 1286. (* *)

CARR, JONATHAN DODGSON, and CARR, JOHN.—(*Letters Patent void for want of Final Specification.*)—" An improved con-" struction of oven intended principally for baking bread, " biscuits, &c."

The oven consists of a " rectangular or other shaped chamber " of brick or stone, with a dome or arched roof." It is provided " with a fire-place at one or more sides thereof, and also " with flues (the entrance to which is near the floor of the " chamber) for conducting off the heated gases. Within the " chamber and around the sides thereof" are " a number of cells " or small ovens, access to which is obtained through the walls " of the chamber." The ovens are constructed, " by preference " of fire-clay tiles or tubes." The ovens all have suitable doors, and each may be " cleaned, charged, or discharged " separately.

[Printed, 4*d*. No Drawings.]

A.D. 1853, May 27.—N° 1308.

KEILLER, ALEXANDER.—" Machine for the manufacture of " confections."

A " pan " for the manufacture of " pan goods " is described. It consists of a semi-cylindrical vessel, steam-jacketted, and having a shaft running along its length. This shaft carries arms, to the ends of which are fixed blades or agitators for keeping the goods in motion. The shaft is driven by any suitable means, and the pan may be heated in any convenient way, as well as by steam.

If the goods are to be " pearled," an arrangement of levers is fixed above the pan by which a to-and-fro motion is given to two vessels mounted on wheels on a rod. These vessels have conical bottoms, and are filled with melted sugar or other material, which they distribute over the goods in the pan as they move backwards and forwards.

[Printed, 6*d*. Drawing.]

A.D. 1853, June 23.—N° 1527.

DU CHASTAIGNT, NOËL NATALIS.—" Bread-making."

The " improvements in bread making consist in constructing " the receptacle or tin employed in making bread, of galvanized

" iron wire or perforated sheet iron, lined internally with a moveable cloth for the reception of dough, in lieu of bakers' tin plates as at present employed.

"This plan insures the immediate contact of the dough with the air, which being a powerful agent of fermentation facilitates the operation of the yeast, and the solidification of all the external parts of the dough."

[Printed, 8*d*. Drawings.]

A.D. 1853, June 23.—N° 1531.

FONTAINEMOREAU, Peter Armand le Comte de.—(*A communication.*)—" Distilling apparatus."

After the products of combustion have been used to generate steam in a boiler for distilling water, they are led to a space where they impart heat to cooking vessels. The apparatus is intended for ships' use.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1853, July 4.—N° 1595.

FÈVRE, Gabriel Didier.—(*Provisional protection only.*)—" Vessel, to be used for the purposes of infusion and decoction, heating liquids, and melting glutinous substances."

" It consists of an enamelled cylinder," " in the centre of which is a smaller cylinder," " the upper part of which is covered with wire gauze." Underneath the smaller cylinder is placed a " lamp or heating vessel," " which is so proportioned to the size of the vessel that the heat expires so soon as the object desired is obtained."

[Printed, 6*d*. Drawing.]

A.D. 1853, August 1.—N° 1790.

GRAY, John.—" Apparatus for consuming smoke."

The invention may be applied, amongst other purposes, to bakers' ovens. The bridge behind the fire-grate is made with passages, " through which a portion of the flame or products of combustion pass from the upper surface of the fire, and with another passage or passages for the introduction of air. These last passages convey the air to the first passages through which the products of combustion pass, and the air is thus mingled with the products of combustion, and escapes through one or

" more apertures in the bridge, and meets with the remaining " portion of the products of combustion which passes over the " bridge. The air may enter the bridge from the ash-pit, or it " may be conveyed to the interior of the bridge by means of " pipes, flues, hollow bricks, or other passages."

[Printed, 6*d.* No Drawings.]

A.D. 1853, August 8.—N° 1848.

HICKSON, William.—" Application of heat for baking."

A series of ovens is combined with a steam generator for supplying steam to a motive-power engine. " A series of spiral ovens " is arranged round a central well. Outside the oven is an external casing forming a flue. These two passages are connected by cross flues passing between the ovens, or the flue may be spiral and follow the course of the range of ovens; it is then divided longitudinally so that a double current of air flows along it. The parts of the ovens exposed to the fire are protected by a water space connected with the steam generator. The ovens may also be superposed one above the other, and the current of air be caused to pass in a zig-zag direction through flues between the ovens. Through the ovens passes an endless chain which carries the biscuit pans. This chain is led round suitable drums and pulleys to move and guide it. The pans are circular and fitted to revolve by friction against the side of the oven as they are carried along by the chain. Similar arrangements may be applied to kitchen ranges and ships' hearths.

[Printed, 1*s.* Drawings.]

A.D. 1853, August 29.—N° 2000.

CUNDY, Joseph.—" Kitchen ranges and cooking apparatus."

" This invention has for its object a mode of constructing and " applying an oven to a kitchen range or cooking apparatus, and " consists of forming the top, bottom, sides, and back of the " oven of fire-bricks or tiles, and these parts are kept together " and supported by tee and angle iron. The fire-place is of the " ordinary construction, but has two falling bars in front in place " of one, and is at one side of the oven. The heat and products " of combustion from the fire pass under a hot plate and over the " oven, then down at one side and under the oven, then up " through a flue formed at the back of the oven." For " portable purposes," the fire-place, oven, and boiler are enclosed in a "rectangular case." "The fire-place is over the oven, and "under a hot plate; the heat and products of combustion pass "off at one side of the fire-place over a fire-brick or bricks, then "under the oven, and then away by a suitable flue at the end or "other convenient place. The boiler is at the back of the fire "and beyond it at one end."

[Printed, 10*d*. Drawings.]

A.D. 1853, August 29.—N° 2004.

JOHNSON, John Henry.—(*A communication from François Durand.*)—"Preparation and application of gluten."

"Gluten bread" is baked in moulds with loose lids, which rise as the gluten expands. The lids are of weight proportional to the purity of the gluten. The moulds are rather smaller at bottom than at top. Two iron rods are fixed so as to limit the rising of the paste. No leaven is required. The oven should be moderately heated. The dough should be made by hand and "as actively as "possible." Chocolate and vermicelli may be made with gluten. In making chocolate a small quantity of muriatic acid may be added.

The following proportions are given :—

"First, bread composed of pure wheaten gluten, with the addi- "tion of one per cent. of salt.

"Second, bread composed of ninety per cent. of moist gluten, "ten per cent. of wheat flour, and one per cent. of salt.

"Third, bread composed of eighty per cent. of moist gluten, "twenty per cent. of wheat flour, and one per cent. of salt.

"Fourth, bread composed of seventy per cent. of moist gluten, "thirty per cent. of corn flour, and one per cent. of salt.

"Fifth, bread composed of sixty per cent. of moist gluten, forty "per cent. of corn flour, and one per cent. of salt.

"Sixth, the same kinds of breads, with the addition of three "per cent., five per cent., eight per cent., or ten per cent. of fresh "butter.

"For chocolate."

"First, gluten chocolate made in the ordinary manner, and com- "posed of about two parts of cocoa and one part of gluten bread "reduced to an impalpable powder.

"Second, gluten chocolate made in the same manner and com- "posed of two parts of cocoa, two parts of sugar, and one part of "gluten bread reduced to a fine powder.

"Third, four parts of cocoa, five parts of sugar, and one part of
" pulverized gluten bread.

"Fourth, gluten chocolate composed of two parts of cocoa, two
" parts of sugar, and one part of pure gluten flour, also reduced
" to an impalpable powder. Each of the parts composing this
" chocolate should be well triturated with care and operated upon
" separately.

"Fifth, gluten chocolate, in which the fresh gluten is rendered
" less adhesive by the addition of one half of its weight of water
" with 0·002 of pure muriatic acid, and dried at a stove, the proportions being two parts of cocoa, two parts of sugar, and one
" part of moist gluten. The chocolate may be also prepared
" without any admixture with the acid.

"Vermicelli may be prepared by means of the various breads
" and by the modes herein-before described. To manufacture it
" dry bread is used, and it is only after it has been submitted to
" the action of heat that it can be pulverized. For gluten bread
" made of Indian corn flour, the same treatment must be adopted
" as for gluten bread of wheat, with the addition of a leaven composed of two thirds of wheat flour and one third of pure water."

[Printed, 4*d*. No Drawings.]

A.D. 1853, September 7.—N° 2056.

ALSOP, Joseph, and FAIRBURN, Edward. — "Baking
" bread."

The bread to be baked is "oat-cake."

The improvement consists "of the use of two cylinders of cast
" iron placed one over the other in a horizontal position, revolving
" on friction rollers and suitably fixed. In the interior of these
" cylinders are fire grates for the purpose of heating them, or gas
" may be employed for this purpose. The dough or batter passes
" through a hopper on to the top cylinder, and thence to the
" lower cylinder (thus being baked on both sides), and thence it
" passes through rollers, and is cut into suitable lengths."

[Printed, 4*d*. No Drawing.]

A.D. 1853, September 28.—N° 2223.

HICKSON, William.—(*Provisional protection only.*)—"Machinery for the manufacture and packing of bread and biscuits."

"The ingredients are amalgamated in a cemo-cylindrical trough "inflated or provided with a double case," within which hot water circulates. The trough is mounted on wheels. The dough is mixed by scrapers acting within the trough, which it is rotated on a turn-table. It is next passed to another turn-table, when the dough is kneaded by drums, beaters, scrapers and knives. Flour is added from wire cylinders above the trough. For mixing biscuits, butter is driven through holes in a rotating cylinder by means of a piston. It meets a shower of flour, and the mixture is received in a kneading trough, in which arms work, rotating on a central axle. This axle has an intermittent to-and-fro motion. The dough passes over rollers to a table on which cutters stamp it out. The table moves, and carries away the scrap dough, the cutters deliver the biscuits into pans below, and the table returns for a fresh supply of dough. The pans pass through the oven, and after this the biscuits are removed from them by a scraper, and delivered on to an inclined table which has a flexible cover. Between the cover and the table are parallel rods, which rise and fall so as to arrange the biscuits in rows and deliver them into a rack. From this rack they are delivered by plungers into a cask, tin, or other receptacle.

[Printed, 4*d*. No Drawings.]

A.D. 1853, October 1.—N° 2246.

HENDRY, John.—(*Provisional protection only.*)—"Ovens and "apparatus for baking."

"The general form of the oven is rectangular, and in the base "of the structure a register or common furnace or fire-place is "built or formed within the walls. This furnace has a flue with "an arched top running horizontally through the structure from "front to back, and from this flue side openings pass off right "and left at right angles to the line of flue, these passages being "for the conveyance of the heat to the internal flues surrounding "the baking cells or vessels containing the biscuits or articles to "be baked. These biscuits cells are close chambers built into "the shell of the oven, and arranged at equal distances or at unequal distances as may be required apart, so as to leave flues "all round them for the passage of the heated currents. The "cells being disposed in layers or stories, a clear heating area is "secured all round them, and the heat passes up to them through "vertical ducts or channels opening out of the bottom horizontal

" passages already referred to. Each cell is completely closed in
" from the products of the furnace, access being only given to it
" by an end door outside for the introduction and withdrawal of
" the articles being baked. In this way the heat from the furnace
" circulates freely over and between the cells, and the current
" finally passes off at the top through suitable flues to the
" chimney."

[Printed, 4*d*. No Drawings.]

A.D. 1853, October 6.—N° 2287. (* *)

GODDARD, Henry.—" Stoves and kitchen ranges."

" One part " of the " improvements consists in the application
" of a moveable or adjustable blower behind and above the fire, in
" combination with a ventilating apparatus communicating with
" the chimney flue, by which arrangement a close or semi-close
" stove or kitchen range may be readily converted into an open
" fire-place, and when used as a close stove, any steam, vapour or
" heat may be readily carried off to the chimney."

" Another improvement consists in placing the bottom of the
" oven below the bottom of the fire-place, and having a side cheek
" with aperture or apertures opening from the fire to a flue which
" passes down the side and under the bottom of the oven, and
" thence up the back to the chimney, the aperture or apertures
" having a perforated slide in order to regulate the temperature
" of the oven when required; also the application to the fire-
" grate of the boiler of a close and semiclose stove or kitchen
" range of a sliding plate to cover an opening at the back of
" such grate or fire-chamber, to facilitate the removal of the
" ashes, &c."

[Printed, 8*d*. Drawing.]

A.D. 1853, November 4.—N° 2566.

PRATT, Henry.—" Kneading dough."

A series of beaters are fitted on an axle which runs along one side of a table. The ends of the beaters project sufficiently to be acted upon by tappets on a drum actuated by suitable power. The beaters may be loaded, or made hollow to receive hot water, heaters or steam. They are arranged with washers between each pair on the axle. To raise the whole series, a frame is fitted which acts by a counter-weight or by a spring. Separate sets of beaters may be arranged, so as to have the effect of separate machines.

[Printed, 6*d*. Drawing.]

A.D. 1853, November 17.—Nº 2667.

UNDERWOOD, William.—(*Provisional protection only.*)—"Cooking stoves."

The invention "consists in arranging within an iron case an "open or close grate for the burning of coals, wood, or other "combustibles, with the flues so constructed as to convey the "heat first to an oven placed above the fire, and next to a boiler "for water placed at the back of the oven, beyond which, at the "extreem back, is the chimney, so constructed that it may be "lengthened, but in such a manner that the lengthening piece, "by means of a inge joint, may be elevated or laid down on the "top." "Another feature" of the improvement "is to provide "a stand for such cooking stove, such stand being made with a "wheel and handles, after the fashion of a wheelbarrow, enabling "the emigrant to remove his stove from place to place, as he "may require, and the barrow will be of great service to him in "providing fuel for the stove and for other purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1853, December 8.—Nº 2855.

BORDONE, Philippe Joseph Toussaint.—(*Provisional protection only.*)—Extracting the juice of beet, etc.

Bread may be made from unground flour treated in the mode described as follows:—

"In carrying out this invention the substance to be operated "upon is introduced (either in the form of fresh pulp or pre- "viously dried and pounded or reduced to small pieces) into "an upright cylindrical vessel having hemispherical ends, the "bottom end being perforated to allow the juice to flow out. "This vessel is provided with a lining or filter of woollen stuff, "similar to those used in working presses, for the purpose of "preventing the fermentation of the juices. This woollen stuff "is to be removed after every operation. The vessel having been "charged with the vegetable substance desired to be operated "upon, steam is to be introduced at a temperature of from 125° "to 130° centigrade, by which means the saccharine particles

" will be dissolved, and flow out at the bottom of the vessel into " a suitable receptacle."

[Printed, 4*d*. No Drawings.]

A.D. 1853, December 9.—N° 2863.

MACKENZIE, CHARLES, and TURNBULL, ALEXANDER.—(*A communication.*) — " Machinery for paring fruit and vegetables."

The fruit, etc., to be pared is placed on a fork which terminates a mandril. The mandril is turned by a handle. By means of gearing, motion is given to a spindle at right angles to the mandril. To an arm on this spindle a rod is hinged, which carries at its end a knife. This is arranged so that the knife acts against the fruit, and as the fruit and the mandril revolve, the knife is carried round in a plane at right angles to the plane of motion of the fruit. One of the wheels of the gearing has part of its circumference without teeth, so that when the blank part comes against the segment actuating the spindle, the latter is thrown out of gear, and, by the action of a spring wound round it, the spindle is turned back to its original position, carrying the arm and knife with it.

A collar may be fitted to slide on the fork carrying the fruit, and this may be actuated by a lever, so that as the knife is drawn back, the collar is slid along the fork, and pushes off the pared fruit.

[Printed, 6*d*. Drawing.]

A.D. 1853, December 20.—N° 2954.

PATERSON, ADAM.—" Cooking apparatus."

Gas and fuel, separately or together, are employed. On each side of a fire-grate is an oven. Over the ovens and behind the fire is a boiler. Between the ovens and the boiler are spaces through which the products of combustion pass. By means of dampers, either oven may be heated. Below the ovens are gas burners, and above the boiler, under a plate at top, are other burners which serve to heat saucepans, etc. In the passages between the boiler and ovens, burners, one over each oven, are placed for use when the fire is not lighted. The other burners may be used either with or without the fire. These passages are connected by a tube passing behind the fire and heated by it.

[Printed, 8*d*. Drawings.]

A.D. 1853, December 20.—N° 2957.

DE GERGY, HENRIETTE ELIZA FARION, veuve DURUT.—"Manufacture of bread."

Bran is boiled in water and the liquid expressed. The bran may be boiled several times, with fresh water, and the resultant liquid boiled again with bran. This liquor is used in place of water to make bread. Wheat bran is preferably used.

[Printed, 4*d*. No Drawings.]

1854.

A.D. 1854, January 11.—N° 72. (* *)

TUSSAUD, FELIX.—"An universal pump-press with continuous "action, called 'continuous producer.'"

This consists "of a screw or helix, or worm, placed inside a "cylinder or cone, which fits easily on the circumference of the "screw, and of one or more chains or endless racks, or a wheel or "wheels with moveable teeth, gearing into the thread or threads, "whatever may be the form or dimensions of these threads. "This screw being set in motion by any motive power, causes "this chain or these chains, or else the wheel or wheels, to move "in either one or the other direction, i.e., backwards or forwards." "It is applicable to all industrial operations where "pressing, forcing, or pumping is required, such as the manufacture of alimentary paste, such as vermicelli."

[Printed, 8*d*. Drawing.]

A.D. 1854, January 19.—N° 131.

GUYON, HELOISE.—(*Provisional protection only.*)—"Manufacture of bread."

"Vinous fermentation," as well as the usual "acid fermentation" is produced in bread. For this purpose "sugar in combination either with brandy at from 32 to 36 degrees, or with "seltzer water powders" is employed. To whiten the bread "a "small quantity of rice flour" is added. The proportions may vary, but are preferably; 100 lbs. flour, 1 lb. sugar, ⅓ quart brandy, or 12 packets of seltzer water powders, and 3 lbs. rice flour.

[Printed, 4*d*. No Drawings.]

A.D. 1854, January 23.—N° 169.

BOUVET, Jean Marie Julien Louis.—(*Provisional protection only.*)—" Kneading machines."

The improvements consist "in a square box or trough, which " swings in gudgeons on its ends. This box being filled with the " materials to be kneaded, and closed by a lid, is set to turn by " means of a toothed wheel keyed on one of the gudgeons, into " which gears a suitable train of wheels, the last of which is driven " by a handle or any suitable motive power.

" On the opposite gudgeon is keyed a wheel, which by means " of suitable wheel gear sets in motion a fan or ventilator. This " gudgeon is hollow so as to allow of introducing into the kneading box the air furnished by the ventilator, and thus to facilitate " the action of the yeast or barm.

" By heating the pipe which leads from the ventilator to the " gudgeon, the air introduced into the dough may be heated, " which becomes almost indispensable in winter time or when the " yeast is not strong."

[Printed, 4*d*. No Drawings.]

A.D. 1854, January 25.—N° 185.

WALMSLEY, Edward Batten.—" Lighting, heating, and " cooking."

The object of the invention is to carry on combustion by means of air from a source external to the apartment. A cylindrical oven is made with a flange at the top which fits air-tight, by means of a water-joint, into a groove round the rim of an outer cylindrical casing. Below this oven is an air-space and a place for fuel or gas burners. The outer casing opens at bottom into a pipe communicating with the external air, and has a pipe above, for the discharge of the smoke. The oven has a separate cover in which is a ring for the suspension of meat, etc.

[Printed, 8*d*. Drawing.]

A.D. 1854, March 3.—N° 519.

NICHOLSON, John.—" Kitchen ranges."

The range has a hot-plate above, an oven on one side and a boiler on the other, all of the usual sort. The flues pass over the boiler and oven, and the heat may be directed as required by dampers. The fire has two small doors for feeding it, and two larger below for roasting at. The bottom of the grate is hinged behind, and can be raised in front by means of a lever. The fire can thus be raised against the hot-plate above, or let down to afford a large surface for roasting.

[Printed, 10*d*. Drawing.]

A.D. 1854, March 9.—N° 562.

SMITH, JAMES.—"Baking ovens."

The ovens are "railway ovens." An endless band of plates jointed together passes along the oven over rollers of suitable shape. The fire discharges immediately on the lower part of this band, without any intervening brickwork. At the discharge end of the oven is an elevator, formed of an endless band provided with pockets. These receive the biscuits, etc. from the travelling band, carry them upwards and deliver them into suitable receptacles at the top. The draught from the furnace is divided. Part passes along below the band, and thence into the chamber containing the elevator; the remainder passes along a flue above the oven, the bottom of which flue is formed of 'louvres,' or jointed plates, so that the hot air, etc. may be directed upon the goods to be baked or not. A cold draught may, if required, be directed upon the receiving end of the travelling band; or, for the same purpose a roller covered with "a porus substance" may have its lower part in water and its upper in contact with the band.

[Printed, 8*d*. Drawings.]

A.D. 1854, March 17.—N° 640. (* *)

HENDRY, ALEXANDER.—"Heating bakers' ovens."

The ovens are heated "by causing flame, heated air, and other
" hot products of combustion to pass through one or more pipes or
" other suitable conductors placed within the oven to be heated."

The pipes are made of fire-clay, cast iron, or other suitable material, and rest on bearing bars or have their ends built into the wall; they are made winding, the joints being made curved with small doors at the bends for the purpose of cleaning.

[Printed 4*d*. Drawing.]

A.D. 1854, March 22.—N° 672.

SHERINGHAM, JOHN.—"Kettles and other like domestic
" utensils."

The invention is applicable to kettles, saucepans, etc. A hollow spur or projection is affixed to the back of the vessel, so that the water in it communicates freely with that in the vessel. This spur is thrust into the middle of the fire, and the vessel supported in front. Or instead of having a spur directly attached to the vessel, a similar hollow piece is connected to the vessel by a length of pipe, so that the saucepan is supported in any convenient position near the fire. It is preferred to use a double saucepan, or one with an inner and outer vessel. The inner vessel is secured by a catch or otherwise. A trivet is described for supporting a kettle before the fire. It is supported on two hooks with long stems hinged to the body of the trivet. Below there is a sliding piece for adjusting the position of these hooks. The top plates slide in and out upon rollers.

[Printed, 1*s.* 8*d.* Drawings.]

A.D. 1854, March 24.—Nº 692.

DOIDGE, RICHARD, and CLOVES, JOHN.—"Rolls to be used "in shaping and impressing sweetmeats and plastic materials."

The patentees describe their invention as follows :—

"Our invention consists in making the rolls used in the manu- "facture of sweetmeats in the following manner, that is to say, we "make the said rolls of an easily fusible metal or alloy, instead of "brass, as is commonly practised, and we form the said rolls by "casting the same upon an axis of iron, or steel, or other metal. "We cast the said rolls in moulds of brass or other metal, and we "make the said moulds in the following manner: we first make "the said mould of a cylindrical figure, and we attach to the "interior of the said mould, by rivetting or otherwise, models of "the objects to be shaped or impressed, the said models having "been bent into a concave form, so as to fit the hollow cylindrical "surface of the mould. The said mould thus resembles a hollow "cylinder, with the objects to be shaped and impressed raised on "its surface. By casting in the said moulds we procure rolls, on "the surface of which the objects to be shaped and impressed are "sunken. The essence of our invention consists in casting rolls "in moulds, and making the said moulds by attaching models "of the objects to be shaped and impressing on the interior of a "hollow cylinder."

[Printed, 6*d.* Drawing.]

A.D. 1854, May 8.—N° 1027.

NAYLOR, Henry Moore.—"Instrument for cutting various "articles of food."

The apparatus is principally intended for cutting off the tops of eggs, but it may also be used for slicing cucumbers, etc. It is composed of two plates, hinged at one end and provided with holes through which the top of the egg, etc. fits. Along the lower plate a knife slides, which may be impelled by a spring or a handle.

[Printed, 8*d*. Drawings.]

A.D. 1854, May 9.—N° 1034. (* *)

BERQUEZ, Francis Peter.—(*Letters Patent void for want of Final Specification.*)—"Gas cooking, and heating stoves."

The invention "consists in constructing such stoves almost "entirely of tiles or bricks."

"A further improvement consists in forming the inside of the "stove of a series of corrugations or angular surfaces for the "better reflection of the heat." For the same purpose the reflecting surfaces are made "of a bright ruby colour."

These stoves are heated by gas burners. A small earthenware chamber is placed round the lower part of the stove; it "emits "two films of air in horizontal lines, one above and another "below a series of gas jets placed parallel between two films of "air." The gas jets are formed of steel coated with gold, silver, or platinum.

[Printed, 4*d*. No Drawings.]

A.D. 1854, June 2.—N° 1223.

MASCHWITZ, Charles.—(*A communication.*)—"Instrument "for paring and slicing apples, potatoes, and other fruits and "roots."

"A horizontal axis turned by a handle carries at its ends a "fork, on which the apple or potatoe is placed, and to which a "rotatory motion is communicated when the said handle is "turned. A second axis, at right angles to the former, and the end "of which is opposite to the centre of the apple, carries a knife-"like cutter, the said cutter being attached to an arm, jointed to "the distant end of the second axis. By means of suitable "gearing, the rotation of the first axis is accompanied by a slow "rotation of the second axis, so that the apple is made to rotate

" under the knife, and the knife at the same time made to per-
" form a semi-revolution about the apple, that is to say, pass
" from one end of its axis of rotation to the other end of the said
" axis, so that every portion of the apple is brought under the
" action of the knife. When the knife has performed the motion
" described, it becomes disengaged from the first axis, and is
" brought by a spring to its first position. By continuing to
" work the machine, the apple may be pared or sliced away, or
" nearly so."

[Printed, 6*d*. Drawing.]

A.D. 1854, June 7.—N° 1259.

PERPIGNA, Charles Anthony.—(*A communication.*)—(*Letters Patent void for want of Final Specification.*)—" Apparatus for " effecting the combustion of smoke."

The inventor says :—

"This invention relates to a mode or modes of supplying a
" current or currents of air to fire-places for the purpose of con-
" suming the smoke generated therein. In applying this inven-
" tion to bakers' ovens, I fit into the crown or roof of the fire-
" place a set of pipes, which are open at both ends, and are
" braced together by a cross bar or bars.

" These open pipes are intended to receive air from the outer
" atmosphere and deliver it in a heated state on to the burning
" fuel, and thereby effect the combustion of the smoke.

" Or in place of pipes, I make an air passage (open at both
" ends) in the crown of the fire-place by the use of fire-tiles.
" Cold air will, therefore, when the fire is lighted, be driven into
" this air passage or flue, and find its exit through the crown of
" the fire-place on to the ignited fuel, when a similar effect to
" that produced by the employment of the metal pipes will
" result."

[Printed, 4*d*. No Drawings.]

A.D. 1854, June 21.—N° 1359.

CHASE, Oliver Rice. — " Machinery for manufacturing " lozenges."

The machine may also be employed for making cakes and biscuits. The paste, after being partly mixed by hand, is placed in a trough wherein work two endless aprons over rollers. By them the mixing is completed. Thence it is delivered by an endless apron to a cutting cylinder, and during the passage it is smoothed by a reciprocating arm, driven by a crank. It also passes between two belts which work through receptacles filled with flour or other dusting powder. It is thus dusted. The cutting apparatus is composed of a cylinder studded with cutters of proper shape. Within each cutter works a piston, which has on its inner end a ring. A rod passes through a row of these rings, so that by it a row of pistons can be moved. Springs keep these rods against the cylinder, and the pistons level with the tops of the cutters, but by means of a fixed arc against which the ends of the rods strike as the cylinder revolves, the pistons may be retracted. On the outside of the cylinder are strips of metal perforated with holes to fit the cutters, these are driven out by springs, and kept down by pins which work against an arch. They act as clearers, to cast off the scrap paste from the clearers at the suitable time. There is a pressure for driving the paste against the cutters as each row meets the paste, and an elastic roller for pressing it still further against them. By this means the lozenges are stamped out and delivered on to a table, while the scrap paste is delivered to an endless band which carries it away.

[Printed, 1*s*. Drawings.]

A.D. 1854, July 11.—Nº 1516.

WALKER, MATTHIAS.—" Cooking stove."

The fire-place is between the boiler and oven. The products of combustion pass " by lateral openings " in the fire-place to heat the boiler and oven.

" The boiler is set at a higher level than the fire-place, and by " means of a flue the flame and heat is made to pass under it. " This flue runs into the main flue of the stove or direct to the " chimney, and it is provided with a damper for regulating the " draft, and also with soot doors or openings for clearing the flues. " The flue for heating the oven passes over the top of the oven, " down the side thereof, and under the bottom of the oven, and " it is there met by an ascending flue which leads to the chimney. " In the top of the stove, just over the side flue, an opening is " made to permit of the horizontal and vertical flues being " readily cleared out, and the space underneath is reached by " another opening below the oven. The fire-place is constructed

" of fire bricks, and loose bottom iron grate bars, any one of which
" may be easily replaced; and it is provided with a compound
" cover, which may either be entirely removed, or merely the
" inner part thereof, to permit of different sizes of vessels being
" placed in direct contact with the fire. A damper is also provided for regulating the draft through the oven flues."

The stove may be made without either the oven or the boiler, the arrangements being otherwise the same.

[Printed, 10*d*. Drawing.]

A.D. 1854, July 21.—Nº 1603.

MOSS, JOHN THOMAS.—"Apparatus for roasting."

The spit has a slot along its length, and in this slot work hooks or prongs, bent parallel with the spit and made to work up and down it, and be fixed at any point by a lever. On these holders the meat is supported. Instead of these, "spring catches" may be used, which grasp the joint instead of piercing it. The spit is cranked at each end, so that it revolves about the main axle. The driving wheel is loosely mounted on a collar which surrounds the end of the shaft. It can slide on this collar, but not revolve on it. The collar has at one end a disc, which presses against a disc on the shaft, and may be screwed against it, so that the whole revolves together. Pins on these discs may be used to prevent slipping. One side of the driving wheel is heavier than the other, so that it can be made to balance the heavier side of the joint.

[Printed, 6*d*. Drawing.]

A.D. 1854, July 24.—Nº 1625.

BELLFORD, AUGUSTE EDOUARD LORADOUX.—(*A communication.*)—" Kneading machines."

A box of square or other shape swings in gudgeons at its ends. Across the box are set bars of various shapes. The box is revolved by gearing attached to one of the gudgeons. To the other gudgeon is affixed gearing which drives a fan. The current from this fan passes through the gudgeon, which is hollow, so as to aid the action of the yeast. By heating the air-pipe, the air may be heated on its passage. This is necessary during winter, or when the yeast is not strong. This may be done by a stove hung upon the pipe, or otherwise.

[Printed, 8*d*. Drawings.]

A.D. 1854, August 25.—N° 1867. (* *)

CASTLE, Thomas.—(*Provisional protection not allowed.*)—" Stoves, kilns, furnaces, ovens, and drying chambers."

"The using of coals in a peculiarly constructed stove, kiln, " furnace, or oven formed partly of tiles, lumps, bricks, and iron, " whereby coke is produced instead of wholly consuming the " coals, and to which will be adapted a boiler of iron forming a " portion of a retort or furnace, but capable of serving the double " purpose of a retort for producing caloric, and a chamber for the " generation of steam; and which is also adapted for the triple " purpose of drying or baking with or without a series of flues " directed to a chamber to be heated by the calorific rays given " off by the retort or furnace after generating the steam, and " which can be worked separately or conjointly."

[Printed, 4*d.* No Drawings.]

A.D. 1854, August 31.—N° 1909.

EDEN, George. — (*Provisional protection only.*) — " Cooking " utensils."

The invention "consists in constructing cooking utensils with " an outer casing steam-tight, thus leaving a space all round the " vessel for the reception of water or other liquid; at the top of " this casing there is an aperture, over which a whistle or similar " instrument is fitted. When the water contained in the space " above named becomes heated, the steam generated thereby " passes up through the whistle, and thus attracts the attention " of those in charge of the utensil." On the lid or cover of the vessel is attached " mechanism, by which a spindle passing through " the lid or cover, and having blades attached, is made to revolve " inside the vessel, thus keeping the contents constantly stirred."

[Printed, 4*d.* No Drawings.]

A.D. 1854, October 14.—N° 2196.

VON RATHEN, Antony Bernhard, Baron.—" Bakers' and " confectioners' ovens."

An iron plate is fixed parallel to, and a short distance from, the front of the oven, so as to leave a space communicating at top with the oven, and below with the chimney. This forms a sort of flue along the side of the oven. In this plate, opposite the oven door, is an iron door. The usual grate may be removed and a box or chamber of iron or fire-brick put in its place. At the bottom of this is a grate which can be moved up and down by a rack and pinion. Or the old grate may be left, and an additional grate placed beneath it. The fuel is introduced through the doors of the old grate, and burns downwards.

[Printed 10*d*. Drawings.]

A.D. 1854, November 10.—N° 2386. (* *)

WIGGINTON, WILLIAM LAWRENCE.—(*Provisional protection only.*)—" Cooking, heating, and ventilating."

These improvements relate to a " stove consisting of an oven, a " smaller ditto, with a small copper between them, having a bail " or bails to which kettles, etc. might be hung to boil food ;" two sets of grate-bars for the fire, " the one a few inches above the " other ; on the upper one coke is burned, on the lower coal." The door of the fire-place is made to slide. A tube conveys the external air to the fire, and another larger one conveys air for warming the apartment.

[Printed, 8*d*. Drawings.]

A.D. 1854, November 29.—N° 2507.

TAVERNER, JOHN.—(*Provisional protection only.*)—" Edible " compound."

The invention is thus described :—

" My new compound consists of farinaceous matter, sugar, or " saccharine matter, and cacao. I take by preference, about two-" thirds of wheaten flour and about one-third of sugar, manna, or " honey, or of a mixture of these three saccharine matters together ; " I add sufficient water to form a paste, and flavor it, or not, as may " be desired, with orange flower water, or other essence or flavoring " material, and then bake the paste in an oven until it becomes " hard and assumes the color of ships' biscuits, so that it may " readily be reduced to a powder, into which state I reduce it by " rasping, pounding, or other suitable means ; I then take cacao " and bruise and pound it by any means ordinarily employed, and " add thereto, while being ground, the farinaceous saccharine " powder first described, in the proportion of five parts of powder " to four parts of cacao, but the proportions may vary according " to the taste of the consumer. The composition may be then

" formed into cakes or loaves or into powder. Again, before the " mixture between the farinaceous powder and the cacao takes " place, the cacao may be boiled with a desired quantity of sugar; " the mixture being effected, a rich powder will be formed, which " will be ready for the consumer."

[Printed, 4*d*. No Drawings.]

A.D. 1854, November 30.—Nº 2515.

WELCH, Edward.—(*Provisional protection only.*)—" Fire-" places and flues."

" To increase the power of the fire for cooking, and to enlarge " the oven much beyond its ordinary size," the inventor proposes " forming the back of the fire in the oven," after a manner figured. The drawing shows an oven extending at the side and back of the fire. No explanation beyond the above is given, and the drawing is only an outline sketch without letters of reference.

[Printed, 6*d*. Drawing.]

A.D. 1854, December 6.—Nº 2563.

MACKIE, John Wyse.—(*Provisional protection only.*)—" Im-" proved description of food."

" The invention consists in incorporating the essence of butchers' " meat with flour, and other ingredients herein-after mentioned, " and forming therewith a biscuit or rusk, which by the addition " of boiling water may be rendered suitable as a food in another " form.

" The proportions of the ingredients used, and the mode of " manufacturing this article of food are as follows :—To one " stone of flour take six quarts of strong beef 'stock,' dis-" solve the 'stock,' rub into the flour one pound and a quarter " of butter, add four ounces of ground pepper, six ounces of salt, " one ounce of carbonate of soda, and three quarters of an ounce " of tartaric acid. The two latter ingredients must be finely sifted " into the flour. Then with these materials make a dough, roll it " out, cut it into forms, which, after being pierced or stabbed with " holes, must be baked, and this should be in a moderate oven; " jelly 'stock' may also be used in the same manner. Should it " be desired, a small quantity of boiling water may be poured on " to these biscuits or rusks, when they will swell, and become of a " light pulpous consistency, somewhat resembling a thick soup."

[Printed, 4*d*. No Drawings.]

A.D. 1854, December 15.—N° 2642.

LYON, Arthur.—" Machines for reducing or mincing meat and " other solid edible substances."

The patentee says :—" My invention consists in forming the top " and bottom of the case of such machines, generally known as " ' sausage machines,' hollow, or in fitting them with water-tight " cases, provided with suitable inlet and outlet passages, or with " one passage only, to serve both purposes, for the purpose of containing hot water, or for steam to be passed into and through " them, to keep the meat and other substances warm while going " through the machine. I form the barrel or drum of white metal, " and cast on one end a wheel or shield, to keep the substances " from the axis on which the barrel revolves, while on the opposite " end I cast three or more portions or threads of a screw, in order " to force the substances from the machine after having been cut. " Instead of providing the upper part of the box or case with a " hinge at one side and a hasp at that opposite to it, I make it " with two hasps, so that it can be readily removed when required " for the purpose of cleaning or otherwise. I fix the machine on " a convenient stand by means of thumb-screws inserted in bottom " thereof, which pass through slots in the top of the stand, and " are secured by turning the heads of the screws at an angle to " the slots."

[Printed, 10*d*. Drawing.]

A.D. 1854, December 16.—N° 2658. (* *)

WIMMER, Leopold.—(*Provisional protection only.*)—" Improvements in baking."

These " improvements relate to ovens for baking bread, bis- " cuits, &c., and consist, first, in constructing the oven of cast- " iron or wrought-iron plates in the shape of a rather flat oval " shell, convex in its upper and slightly concave in its lower part, " and in so conducting the fire by which the said shell or oven is " to be heated from the *outside* that it will circulate first above " and next below the oven."

The flues are arranged so that the heat can be regulated; the bottom of the oven slopes upwards towards the back to allow the contents to be readily seen; steam is occasionally injected into the oven on the bread; pipes are provided to carry off the steam.

[Printed, 4*d*. No Drawings].

A.D. 1854, December 22.—Nº 2706.

LOYSEL, EDWARD.—"Apparatus for cooking."

The apparatus "is intended to roast, bake, or prepare such sub-" stances as require the application of heated air to bring them " to such a state as will render them fit for food, such, for in-" stance, as potatoes, chestnuts, cakes, bread, and other analogous " substances." The apparatus "consists of two dish-shaped " vessels, which are hinged together at one side, and are provided " at the opposite side with handles to hold the parts together. " These vessels are provided internally with perforated false bot-" toms, upon which the articles to be operated upon are placed. " One of the dish-shaped vessels acts as a cover for the other when " in use, and the two parts are held together by means of the " handles, a vacant space of a considerable capacity being thus " formed, and the articles to be cooked or roasted placed therein " on one of the perforated false bottoms. The apparatus may be " placed on any fire, and the heat therefrom will quickly heat the " metal of which the apparatus is constructed, and this heat will " be communicated to the articles placed therein. When the arti-" cles are cooked to a certain extent on one side, the apparatus " may be turned over; and this operation may be repeated from " time to time, according to the nature of the article, and until " the operation is completed."

[Printed, 10*d*. Drawing.]

A.D. 1854, December 30.—Nº 2763.

HUGHES, BERNARD.—"Heating of bakers' ovens."

The flame and heated gases pass through a serpentine flue below the oven, thence to a similar flue above it and to the chimney, Side flues are also arranged so that the products of combustion may pass through one only of these flues and then to the chimney. The oven is built "of fire brick and mortar;" " the bottom flues are covered with fire tiles; the sole of the " oven is laid with common tiles, and the top of the oven and " top flues are covered with T iron," "with tiles laid across the " bars and covered with cinders and sand." The door extends the whole breadth of the oven and is made in three parts, hung by chains over pulleys. The ovens may be "constructed as port-" able ovens." Several may be placed together.

[Printed, 10*d*. Drawing.]

1855.

A.D. 1855, January 13.—N° 98. (* *)

HAYWARD, Edward Lambert.—"Kitchen ranges."

"This invention consists of improvements in kitchen ranges with " a view to apply heat more advantageously to the ovens. For " this purpose, at that end of the fire-place where the oven is " situated, the whole or a portion of the lower part of the check is " recessed towards the oven, and is so arranged that the principal " of the heat and products passing from the fire to heat the oven " shall pass over the back of the recessed portion of the cheek, or " over one or both sides thereof, down that side of the oven next to " the fire, thence under the oven, thence up the other side thereof, " and thence away by a flue or passage above the oven. And there " is a valve or stop between the upper part of the cheek and the " oven, by which the passage in that direction can be wholly " closed or allowed to be partly open, by which the quantity of " heat and products passing from the fire to heat the oven may " be regulated and controlled, as to whether the whole or only " part shall pass under the oven."

[Printed, 6*d*. Drawing.]

A.D. 1855, January 31.—N° 234.

LYON, Arthur.—"Sausage making or mincing machines."

The improvement "consists in lining the interior of sausage " making and mincing machines, as also the barrel, with tin or " other white metal, whereby no part of the juices of the sub" stances to be cut up can be wasted or injured, and the interior " of such machines can be readily kept sweet and clean." The lining is formed entirely of tin, or of iron, or other metal, coated with tin.

[Printed, 4*d*. No Drawings.]

A.D. 1855, February 2.—N° 251.

CASTEL, Jules, and BEAUPRÉ, Frederic Mauricheau.—"Burner for lamps, called the pyro-pneumatic burner."

A burner for an oil lamp is made with a cone of metal surrounding the wick to direct air upon the flame. The inner cylinder which supports the wick also diverges outwards at the top. By this means the wick is protected from being charred. For heating, a lamp may be surrounded by a "bulb," within which is a plate. Against the plate the flame impinges. On a chimney above a kettle may be placed. For cooking a boiler may be placed over the plate, the steam from which passes to cooking vessels above, the boiler is surrounded by compartments which "may be used as stoves."

[Printed, 8*d*. Drawing.]

A.D. 1855, February 20.—N° 367.

HULETT, DAVID. — (*Partly a communication.*) — "Heating, "cooking, and lighting by gas."

A stove is made of glass plates fixed in a metal frame. There is an inner and outer casing, with a space for the circulation of air. The stove may be rectangular, or it may be made of glass plates bent into any desired form. At the bottom within the inner casing is a gas burner with an inverted V-shaped protector over it. Over this again is a metal shade, which covers the whole burner. The top and bottom plates may be of metal. Perforations are made to afford a supply of air. The inner case may be silvered over on its outside, and the outer case may be lined with paper or other material.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1855, February 23.—N° 404.

GARDNER, JOHN EDMUND.—"Portable cooking apparatus."

The apparatus may be used over fuel or a lamp. A grating is supported by folding legs, which may be pointed, to stick in the ground. This grating serves as a gridiron; when used with a lamp a metal plate is placed over it. A boiler or teapot is made with a folding handle and a spout which screws on and off. Drinking cups, saucepans with moveable handles, and small semi-cylindrical vessels to hold condiments may all be made to pack inside one another. One vessel may have a grater on it. A cooking lamp is made of a vessel having a ring of holes perforated in its top. This is filled with spirit; a small spirit lamp burning with a wick is placed below; it volatilises and ignites the spirit in the larger lamp. The small lamp screws on the larger, and forms a cover to it. Three folding arms are attached to the top of the lamp; these support a cooking vessel over it.

A pair of bellows with a nozzle to screw on and off is figured, and a can for holding spirit, hollowed at one side to fit another vessel. The whole may be packed into a leather case carried by a strap.

[Printed, 10*d*. Drawing.]

A.D. 1855, February 28.—N° 433.

SYMONS, ALEXANDER.—(*A communication.*)—" Egg-cooking
" apparatus."

" It consists of a portable metallic vessel to be heated by a
" suitable lamp. The vessel may be vase-shaped or urn-like,
" having a suitable cover fitting it closely, and may be mounted
" upon scrolls or brackets from a suitable base plate or stand.
" The bottom of the vessel should be of such a form and size in-
" ternally as to contain but a small quantity of water, which,
" being converted into steam by the heat applied externally, is
" sufficient for the purpose of cooking the eggs contained within
" the vessel.

" Vessels may be made of various sizes, so as to contain 3, 4,
" or more eggs in a suitable frame, receptacle, or stand for hold-
" ing them suspended above the water contained in the bottom of
" the vessel, and the base or foot of such frame or stand should
" be made to fit into the bottom of the vase or urn-like vessel,
" and be perforated, so as to restrain the water from violent
" ebullition, and readily permit the escape of the steam as it is
" formed, so that it may fill the vessel and cook the contents
" thereof.

" The lamp may be simply a stamped metal cup or thimble-
" piece, with an annular channel or groove, into which may be
" placed just sufficient spirits necessary for the purpose of cook-
" ing the eggs to the required degree. The lamps may be move-
" able, or fixed under the bottom of the vessel."

[Printed, 8*d*. Drawing.]

A.D. 1855, March 1.—N° 453.

SADLEIR, THOMAS.—Heating boilers and ovens by the heat from charcoal kilns.

Between each pair of kilns is fixed a boiler or an oven. The boiler has a thin partition "in the middle of the bottom," and as the kilns are lighted alternately, each side of the boiler is acted on alternately. Above the boiler is a steamer with a perforated false bottom. A house may be arranged with three rooms, the centre one for cooking and those at the side for charcoal burning, etc. The kilns and boilers, of which there are two sets, are arranged so that the kilns open into the outer chamber and the boiler, etc. into the central one.

[Printed, 8*d*. Drawing.]

A.D. 1855, March 3.—N° 476.

WILLIAMS, John Octavius.—(*Provisional protection only.*)—“ Camp stoves and cooking apparatus.”

The fire-place is formed of plates of iron, united “into the “ form of an oblong figure.” At one end is a door, at the other a flue fastened by flanges sliding in grooves upon the stove and a rod passing through eyes in the stove and over a flange on the flue. A grating is fitted within the stove to support the fuel, and the size of this grating may be lessened by “an iron box or “ stopping plate” which may cover part of the grating. The top is open, but a groove is formed in the top of the side plates; this groove is filled with sand and into it fits a rim on a flange fitted to all the cooking vessels. In this way an oven, boiler, or steamers, may be fitted over the fire. Various vessels for steaming may be used, fitted one above the other, and the steam pass from one to the other through holes in their bottoms. The oven has a perforated cover to allow steam to pass off.

[Printed, 4*d*. No Drawings.]

A.D. 1855, March 19.—N° 613.

ROEHRIG, Philippe.—“Alimentary substance.”

The new substance is particularly intended for “pottages, “ soups and broths.” It consists of purified or refined blood, boiled rice, “fecula of potatoes or mashed potatoes” and flour. The proportions vary, but the rice should be “in excess.” The blood is purified by boiling it with sulphate of soda and wild thyme, or in any other suitable way. The blood is boiled till it gets thick, when a paste or dough is made with it of which biscuits are made, for consumption as ordinary biscuits, or use as component parts of soups, etc. Several modifications are mentioned.

1. Oxen or calves blood is filtered through animal black. Salt is mixed with it, and the blood thickened by heating at 145° to

160° Fahr. An equal weight of rice flour is added. It is then baked.

2. "Seconds of beef or other meat" is boiled with salt, vegetables and spice. The mixture is steamed, and the gelatine produced mixed with thickened blood. Twice as much wheat and rice flour is added, and the whole baked.

3. "Calf ruffles" are reduced to gelatine, and this is mixed with double the quantity of flour.

[Printed, 4*d*. No Drawings.]

A.D. 1855, April 7.—N° 776.

JONES, David Griffiths.—(*Provisional protection only.*)—"Improved farinaceous food."

The invention "consists in combining or mixing the following "ingredients in about the proportion herein set forth, namely,—

"28½ parts of gluten, deprived of its water, dried, and pul-"verized.

"16 parts starch, obtained from Spanish Semola.

"1 part sulphur, obtained from the hexandria tetragenia.

"½ " earthy matter.

"26 " vegetable albumen, deprived of its water, and powdered.

"28 " vegetable gum.

"The whole to be thoroughly triturated together, when it will "will be ready for use, and can be made by ordinary means into "bread, biscuit, cake, pudding, gruel, infants' food, nursery bis-"cuits, flummery, blanch mange, and other similar edibles. The "advantage of this new or improved farinaceous food consists in "its being more nutritious and containing none of the astringent "properties common to ordinary farinaceous foods; and by its "possessing a larger amount of carbon it may be used as a sub-"stitute for cod liver oil without having its nauseous properties."

[Printed, 4*d*. No Drawings.]

A.D. 1855, April 18.—N° 861.

EDWARDS, William Vaughan—(*Provisional protection only.*)—"Portable boiler and cooking apparatus."

"This invention consists of one or more metal pipes, tubes, or "funnel introduced vertically or otherwise into a boiler, made "of metal, and covered either wholly or partially with felt or

" some other non-conducting material, or without coverings, at " option, whereby an increased amount of heating surface is " obtained, the said tubes, pipes, or funnels acting as a chimney, " in addition to its preventing the increased heating surface; " the said boiler being adapted to stationary or portable fires or " stoves, or with fire-place constructed therein, attached to, or " separate from it, and applicable for cooking per se, or as a " boiler for generating steam to cook by steam in other utensils," " and also applicable for heating portable or fixed ovens either " with or without the aid of auxiliary tubes."

[Printed, 4*d*. No Drawings.]

A.D. 1855, May 12.—N° 1081. (* *)

DUPRE, John.—(*A communication.*)—Ovens.

" In constructing an oven it is preferred that the base should be " rectangular, the fire-bars being arranged in the centre; there " is a fire-door in front, and there is a flue from the back end of " the fire-bars under part of the oven, which opens into an " upright flue which leads to the chimney, and it is provided " with a damper for regulating or closing the draft in that " direction. It is preferred that the oven should be circular. " The bottom of the oven has an opening in the centre over the " fire-bars, and in the bottom near the centre there are air " passages, the air circulating through which becomes heated, " and such heated air is admitted into the oven, and is regulated " by valves or slides. The roof or top of the oven is formed " convex at the outside, and concave on the inside, and it has in " it four openings, which communicate with flues above, and " which communicate with the upright flue leading to the chimney; these openings have valves or slides to regulate the " passages of air and vapour from the oven."

[Printed, 6*d*. Drawing.]

A.D. 1855, May 21.—N° 1135.

BENNETT, Edward Holmes.—(*Provisional protection only.*)— " Roasting jacks."

The invention " consists in constructing roasting jacks, which " differ from ordinary roasting jacks in the following respects:— " The conversion of the rotatory motion of the axis on which the " main spring acts into an alternating motion is effected by means

" of a crank instead of the escapement used in the ordinary jack. " The said alternating motion is communicated to the line or silk " on which the joint or matter to be roasted is hung by means of " a worm or thread hung to the said line or silk; the teeth of a " wheel, to which the aforesaid crank gives an alternating motion, " engaging with the said worm, and communicating an alternating " rotatory motion thereto. In order to effect a saving of room in " the jack case," the inventor makes " the spring box revolve with " the uncoiling spring, the said spring box being either fastened " to the main wheel and actuating the next pinion in the train of " wheel-work, or one which is fitted with a ratchet, and which " may be used as the key of the jack." The "whole of the works " (excepting the line and neck of the jack)" are inclosed "in a " case of iron sufficiently strong to bear rough usage without " damage."

[Printed, 4*d*. No Drawings.]

A.D. 1855, May 24.—N° 1176.

CHASE, Oliver Rice.—(*Provisional protection only.*)—"Machine for making confectioners' 'pipe.'"

"The invention consists in an arrangement of endless aprons " in conjunction with a knife or cutter, by means of which any " suitable paste is cut into strips and rolled into cylinders of the " required size and length. Such cylinders, when made of sugar " paste, are known to confectioners under the name of 'pipe,' and " it is for the manufacture of this article that" the "machine is " mainly intended. It is applicable, however, to the making of " cylindrical pieces from flour paste or other plastic material."

"The paste from which the 'pipe' is to be made having been " properly prepared, is placed in strips of proper width upon an " endless band or apron, which conveys it under a revolving " cutter or knife so adjusted as to cut off at each stroke a " sufficient quantity to make one roll or cylinder of 'pipe.' The " piece thus cut off falls on to an endless apron, which carries it " under a second apron, moving more slowly than itself, and in " an opposite direction. Between the two aprons the piece of " paste is rolled into a cylindrical stick of 'pipe,' and, being " carried out by the lower apron, falls into any proper receptacle placed to receive it."

[Printed, 4*d*. No Drawings.]

A.D. 1855, May 28.—N° 1221.

GRAFTON, Henry.—" Apparatus for heating and cooking."

A gas burner for cooking is made of earthenware, of the shape of a short section of a cylinder, having its upper face perforated with small holes, and open or closed below as desired. If open its lower rim may be notched to admit air. Gas is supplied to the interior by a pipe. The cooking vessel is placed over this. A cylindrical cover may be placed upon the burner and have a saucepan fitting into it with a rim on it fitting on the edge of the cylinder. Rings of earthenware may be used to fit different sizes of saucepans. A similar cover may be fitted with shelves, or may be made in sections fitting one upon the other, and forming separate compartments for baking, etc. These compartments may communicate by means of holes leading from one to the other. There may also be holes for the escape of steam. The burner and cover may be formed in one piece, and the cover may be double with a space for heated air. A simple earthenware cover may be used over the burner for cooking.

[Printed, 8*d*. Drawing.]

A.D. 1855, June 4.—N° 1271.

GRAVELEY, William Henry.—(*Letters Patent void for want of Final Specification.*)—" Apparatus for cooking purposes."

The cooking apparatus is principally for ships' use, and is combined with a distilling apparatus. No description whatever of either is given.

[Printed, 4*d*. No Drawings.]

A.D. 1855, June 21.—N° 1421.

SHELLEY, Mathew.—(*Provisional protection only.*)—" Cook-" ing utensils."

Saucepans and other culinary utensils are fitted with tubes projecting from the side or bottom into the fire. The tubes are preferably siphons, and have both legs terminating within the vessel, one at a higher level than the other. The tubes may be acted on by gas, instead of by a fire.

[Printed, 4*d*. No Drawings.]

A.D. 1855, June 22.—N° 1432.

CHASE, Oliver Rice.—" Machines for making lozenges."

Improvements on No. 1359, A.D. 1854. Most of the mechanism is the same as that described in the above Specification. The pressure on the polishing roller is adjusted by causing its journals to work in guides, whose height above the paste is regulated by screws and springs. Instead of the cutters before described, a new device is employed. The paste after being rolled, etc., is caused to hang down in a sheet in front of a plate. A series of cutters is then driven against it by means of a cam, and retracted, the surplus paste being prevented from being drawn away by a perforated plate or comb, through which the cutters act. The sheet of paste passes on, and exposes a fresh surface to the cutter, while the scrap paste falls into a trough below. The lozenges pass through the cutter, and fall out behind them. A clearing knife passes along the plate, to clear it from paste after each operation.

[Printed, 6*d*. Drawing.]

A.D. 1855, July 9.—Nº 1532.

PROPHET, JOHN. — (*Provisional protection only.*) — "Confec-"tionery."

In cutting out lozenges or similar articles from dough, a sheet of the dough is laid upon a traversing table, and "submitted to "the action of a set of vertical traversing punches." "The "dough carrier is supported upon a set of horizontal rollers in the "framing of the machine, and it is traversed forward at intervals "as required by a ratchet connection, communicating with the "vertical traverse movement of the punches. The entire apparatus is actuated by an overhead horizontal crank shaft, the "cranks on which have connecting rods passing down to the cross "head of the punches. Two or more of the carrying rollers" "are geared together by strapping, & one of these rollers carries "upon its spindle the ratchet wheel, which acts as the driver, a "detent being passed down to this ratchet wheel from the punch "movement." To clear the cutters from the lozenges a series of stationary knocking out pins enter the cutters, or fixed pistons may be used, so that the air is compressed and expels the lozenges. To clean the punches, one set is removed, and another placed in the machine, or while the scrap dough is being removed, a pan of water is placed so that the action of the machine dips the cutters into it and cleans them.

[Printed, 4*d*. No Drawings.]

A.D. 1855, July 14.—N° 1584. (* *)

DERRIEIJ, JOSEPH JULES.—(*Provisional protection only.*)—
" Improvements in machines for manufacturing lozenges, wafers,
" or pastilles of pasty materials."

"The invention relates to a mechanical arrangement for manu-
" facturing lozenges, wafers, and pastilles of pasty materials, and
" consists of a series of rollers between which the paste passes for
" bringing the same to the required thickness, after which the
" paste is carried forward between a revolving cylinder and a
" movable sliding piece, which latter is provided at its under
" side with suitable protruding dies, placed opposite to punching
" plates fixed flush on the outside of the cylinder, and in which
" other dies corresponding in number with those of the sliding
" piece, and situated exactly opposite to these latter, are made to
" move from the inside of the cylinder towards the outside by
" means of suitable springs in the interior of the cylinder; this
" latter and the rollers are made to revolve, and the sliding piece
" to move, by suitable gearing and prime mover; and at each
" time the punching plates come in contact with the paste and
" opposite the protruding dies of the sliding piece, these latter cut
" out a lozenge, wafer, or pastille from the paste between these
" dies and the movable dies of the cylinder, which latter hereby
" are pushed partly in the interior of the cylinder, and as this
" latter continues revolving, the thus formed lozenge is thrown
" off and falls on a receiver, whereas the superfluous parts cut off
" from the paste fall on a revolving apron."

[Printed, 4*d*. No Drawings.]

A.D. 1855, July 18.—N° 1610.

HOYOS, FELIX.—(*Letters Patent void for want of Final Specification.*)—" Roasting spits."

The "improvements consist in having a roasting spit furnished
" with two or more spindles or spits, on which the meat or other
" articles to be roasted are attached, which spits or spindles are
" made to turn lengthwise before the fire round or together with
" a central revolving axis, and by a suitable gearing obtain a sun
" and star motion in such manner that they revolve on their own
" axis the moment they come close to the fire, and turn conse-
" quently in that moment with an increased speed, by which the
" meat or other articles fixed on the spindles, at each time when

" these latter come close to the fire, receive the direct action of " this latter only during a few moments, so as not to be injured " by the same."

[Printed, 4*d*. No Drawings.]

A.D. 1855, July 20.—Nº 1642.

JOHNSON, JOHN HENRY. — (*A communication from Andre Koechlin, Napoléon Joseph Vicomte Duchatet, and Joseph Antoine Auguste de Perpigna.*)—Motive power machine.

The machine is applicable as a turbine, blower, and for other purposes. Part of it is also available as a kneading machine. This arrangement "consists of two cylinders working in " a closed casing, and fitted each with longitudinal teeth on " diametrically opposite sides of the cylinders, and made to gear " into each other as they rotate." The "apparatus may be used " for the kneading or working of dough or other pastes by imparting a reciprocating motion thereto by means of a winch " handle or other suitable contrivance."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1855, August 1.—Nº 1744.

VAUGHAN, CHARLES, VAUGHAN, WILLIAM JAMES, and VAUGHAN, RICHARD.—(*Provisional protection only.*)—"Making and attaching the handles of iron bowls and other iron " vessels."

"A piece of iron of the length of the tang to be made" has placed " upon that end which is to be spread into what is called the bit, " a short piece of iron. The said pieces of iron having been " raised to a welding heat are subjected to the action of a pair of " dies, by which they become welded together, and the cross piece " spread out into the proper form of the bit. The pressing dies are " so formed that three studs are made on one side of the bit, which " said studs answer the purpose of rivets in attaching the tang to " a vessel, three holes being made in the vessel. The three studs " on the bit pass through the said holes, and, being rivetted " affix the tang to the vessel." The invention is applicable to frying-pans, amongst other articles. The bit may be formed without studs.

[Printed, 4*d*. No Drawings.]

A.D. 1855, August 3.—N° 1768. (* *)

JOHNSON, John Henry.—(*A communication from Charles Victor Beslay.*)—(*Provisional protection only.*)—" A new material " for ornamenting various articles."

" This invention consists in the production on paper or cloth " of any kind of an imitation japan, composed of various colors " or materials," mother-of-pearl being the material most frequently employed. If it be employed "it is used very thin, " & it is shaped according to any desired pattern. This sub- " stance is then laid on the surface of the paper or cloth; a thin " coat of liquid or transparent gelatine is applied to those surfaces " of the cloth or paper not covered by the mother-of-pearl, so as " to fill up the hollow between the mother-of-pearl, which would " otherwise stand up slightly from the surface of the fabric, by " which means a perfectly even, smooth, and glossy surface is " obtained. The design may then be painted according to taste, " and the colors so applied are preserved from contact with the " air by one or more thin coats of gelatine or varnish, according " to the nature of the paper or cloth employed.

The paper or cloth so ornamented may be used for decorating various articles, among which are sweetmeat boxes, by being simply gummed or cemented thereto.

[Printed, 4*d*. No Drawings.]

A.D. 1855, August 6.—N° 1779.

WILSON, Fischer Alexander.—" Portable cooking appa- " ratus."

A portable camp cooking apparatus is described. Two cylinders are fitted one above the other, and under the lower one is a grate. The oven is hung from the top of the upper cylinder, and occupies nearly all the space within the two, leaving a small space all round it for the heated air which escapes by apertures round the side. The oven has a ventilator, and there is a damper over the fire. For boiling, frying, etc., the cylinders may be used separately, and the saucepans etc. fit on the top; the utensils are all made to pack one within the other, and their handles and spouts are removeable.

A "cottage apparatus" of a similar sort is described. There is only one cylinder, the bottom of which forms the grate. The utensils have a "pipe or opening" through them to obtain greater heating surface.

A "revolving apparatus" is described. It is formed of two super-imposed cylinders. The lower one contains the grate, and the upper one revolves upon it. The upper one has a cover fitted with apertures for the saucepans, etc. There is a central cylinder passing through the apparatus from the grate to distribute the heat. The two cylinders may be separated, and used over separate fires.

There is also a roasting apparatus, which is thus described;— It "consists of a shield, to which a telescopic pipe is attached by "means of staples or screws, or otherwise. This pipe encloses "a string or worsted, which is fixed to a fiddle peg at the top, "where the pipe is attached to the mantle-piece or other support. "The pipes when adjusted to the proper length are fastened by a "clip and thumb screw, while the length of the string can be "regulated thereto by the fiddle peg. At the bottom of this "string the joint for roasting is to be suspended within a "skeleton shield, with a shallow circular pan at the bottom for "puddings, &c.; and by making a cylindrical cover to this "skeleton shield enclosing the pan, the operation of baking can "be performed."

[Printed, 10*d.* Drawing.]

A.D. 1855, August 25.—Nº 1931. (* *)

LE FRANÇOIS, HONORÉ.—(*Provisional protection only.*)— "An improved apparatus for cleaning stew pans and other "similar culinary utensils."

The invention "consists of an upright frame or stand, furnished "with a vice or similar contrivance, between the jaws of which "a stew pan or other similar culinary utensil can be firmly held, "so as to be acted upon by a series of revolving brushes, which "work upon pivot centres on the said frame or stand in such "a manner as to be brought to bear upon the outer and inner "surfaces of the said pan at the same time. The apparatus, "which is furnished with the ordinary winch handle for giving "motion to the same, has also a suitable arrangement for regulating and extending the range of the said brushes to any "extent required by the employment of a common rack and "pinion, the effect of which enables the brushes to be moved "backwards or forwards, so as to suit any sized pan."

[Printed, 4*d.* No Drawings.]

A.D. 1855, September 3.—N° 1983.

HOLDEN, George Thomas, and NICHOLAS, Richard.—"Roasting jack."

The key is screwed on a tube which works over the neck of the jack. To this tube is fixed one end of the spring, and a ratchet wheel connected in the usual manner by a click to the main wheel. The main wheel is preferably an "internal toothed" one. It gives motion through intermediate gearing to a "saw-tooth wheel." The verge has its axis horizontal, receives its oscillating motion from the saw-tooth wheel in the usual manner, and has a central opening for the silk to pass through. The oscillation motion of the verge is communicated to a quadrant by a finger attached to the verge, and working in a slot in the quadrant. The quadrant gives motion through a multiplying wheel to the centre pin.

The escapement is as as follows:—The escape wheel has its axle, and the pinion on its axle, hollow, to allow the silk to pass through. It has teeth only in portions of its circumference, and they gear alternately into pinions on opposite sides. Wheels on the axles of these pinions gear into the central pinion. The central pinion may be made to slide on a square rod, to the end of which the silk is attached. This obviates any mischief arising from the stretching of the silk.

[Printed, 10*d*. Drawings.]

A.D. 1855, September 3.—N° 1991.

HUMBY, John.—"Machine for cutting vegetables."

"The invention consists of a circular cutting machine, for cutting or slicing cucumbers, onions, French beans, and other "vegetables. The machine is composed of a series of circular "cutters, mounted and working in an iron or wooden frame, and "having a plain roller in contact therewith either underneath or "above the same, the cutters and roller being connected together "by means of spur gearing, and being caused to revolve by means "of a handle or foot treadle. The beans or other vegetable matter "to be cut or sliced are placed upon a slide or feeder in front of "the cutters, by the revolution of which they are passed through "the machine and cut as required. The cut vegetable matter is "cleared from the cutters, and discharged into a suitable receptacle by means of a fixed comb or rack, the teeth of which pass "between the circular revolving cutters."

[Printed, 6*d*. Drawing.]

A.D. 1855, September 8.—N° 2037. (* *)

BIRD, JAMES.—"An improvement in the manufacture of "biscuits."

This consists in mixing ground vegetable charcoal with the flour, in the proportion of five per cent. of charcoal, and afterwards manufacturing the biscuits in the ordinary way. The charcoal should be previously purified by being heated to a red heat and then thrown into "water rendered slightly alkaline by "the addition of bi-carbonate of potash (say in the proportion of "one ounce to the gallon)." It is left for forty-eight hours, the water drained off, and the charcoal ground.

[Printed, 4*d*. No Drawings.]

A.D. 1855, September 10.—N° 2046. (* *)

HEWETT, CHARLES.—"Baking ovens."

The improvement "consists in having ovens made of two "chambers or cases of suitable dimensions, one within the other, "and made of sheets of metal," preferably "wrought iron, well "screwed together or rivetted, so as to be perfectly tight." "In the interval between the two chambers" is introduced "grease or oil, so that by applying heat to the outer case "the inner one may be heated by the oil or grease contained "between."

[Printed, 8*d*. Drawings.]

A.D. 1855, September 14.—N° 2075.

GOMME, THÉODORE, junr., and BEAUGRAND, CHARLES EUGENE AUGUSTE.—"Machinery for manufacturing copper "and other wares."

"Culinary vessels" are among the articles that may be made by this process. The machine "consists of a frame supporting at "its lower end a cylinder, in which a piston is working that "operates a stamping punch. Around this punch, and resting "on the bed plate of the frame, are disposed conical rings (either "grooved or smoothed) and the ring bearer. Above it there is a "compressing plate operated by a screw, the hollow part of which "is at the upper part of the frame; or it may be operated by a "piston rod. The pressure may be limited or maintained by "means of a stop-cock disposed in any suitable way. The piston "is worked either by a screw, steam, or water power. The rod of

" this piston is hollow, and has in its inside another smaller rod, " serving to work the upper plate of the punch, which plate sup- " ports the stamped piece when the punch and piston are down. " To work rather thick pieces, smooth rings are used, and the " punch made of two concentric parts, one of which is massy and " the other annular; the latter cut conically at its upper end, " both moving simultaneously or separately. For pieces of a " peculiar form, and which require true finish, the metal is " stamped with forms, which allow the punch to be withdrawn, " that is to say, the curves of the bottom of the vessel are first " formed; and in order to form the top part, which is narrower, " mandrels are used, which are disposed in the inside of the vessel " in such a manner that they receive the counter pressure of the " tools used for modelling the metal, and that the punch may be " withdrawn from the vessel when the raising is effected.

"When the metal is stamped," "an upper edge is turned down, " so as to be pinched between two annular pieces or rings, and " in the inside of the vessel a mandrel is inserted eccentrically " with its axis, having the same external form as the interior part " of the said vessel. This eccentric mandrel is supported on a " fixed shaft, the fusee of which rests upon a plate in the bottom " of the stamped vessel. The greatest width of the said plate " admitting the said fusee, must be less than the smallest dimen- " sion of the opening of the vessel. The metal supported by " internal mandrels with peculiar forms may admit the working " of an external grindstone (operated by hand or by a slide), that " models or diversifies the forms. If the opening of the vessel " be too small to allow a mandrel of very eccentric form to be " got in, the latter should be mounted on an additional shaft, " fixed to and brought out of the centre of the former shaft. If " it be requisite to turn the vessel so as to polish the same, motion " is given by means of handles connected with the pincers clasping " the opening of the vessel."

[Printed, 10*d.* Drawing.]

A.D. 1855, September 15.—N° 2083.

CHANDLER, Henry.—"Roasting jacks."

The spring which actuates the jack is "two or three times the " length of the ordinary spring; the said spring is coiled upon a " horizontal axis, which said axis carries a crown wheel, similar

" to that of the old watch escapement, excepting that the teeth " are not continuous in the said crown wheel, toothed and un- " toothed portions alternating with each other through the whole " circumference of the said wheel, each toothed portion being " opposite to another toothed portion. The said crown wheel " engages with pinions at the opposite extremities of a vertical " axis, the said axis and pinions resembling the axis and pallets " of the old watch escapement, excepting that pinions are sub- " stituted for the said pallets. An alternating motion is com- " municated to the vertical axis by the teeth on the crown wheel " alternately engaging with the upper and lower pinions on the " vertical axis. The said motion is transmitted to the axis " attached to the silk or cord on which the matter to be roasted " is hung, in the following manner:—A drum is situated on the " lower end of the before-mentioned vertical axis, and a cord or " band from the said drum is twisted round the axis hung upon " the silk or cord; the alternating rotatory motion of the first- " named vertical axis is transmitted to and multiplied in the axis " hung on the silk or cord. The case of the jack constitutes the " supporting framework of the mechanism."

"The invention consists, secondly, in the use of the ordinary " or circular clock escapement, for converting the continuous " rotary motion produced by the spring into an alternating rota- " tory motion, and conveying the same to the axis attached to " the twisting silk or cord by which the meat or other matter is " suspended. The inventor attaches to the escapement" a pendulum, "which is connected with an endless cord passing over two " pullies; the oscillating motion of the pendulum communicates " an alternating motion to the said band, which said motion is " communicated to the suspended axis by the said cord passing " round the said axis;" or the pendulum is made "in the form " of a sector" and a rack in the sector engages in a pinion on the suspended axis.

[Printed, 8*d*. Drawing.]

A.D. 1855, September 27.—N° 2157.

THÉRY, Charles Victor.—"Preparation of coffee."

"The coffee is first roasted and reduced to powder, and then " ground like cocoa, with the addition of sugar and some suitable " fatty substance, preferably butter of cocoa, and the paste thus

" obtained is put into moulds, as for chocolate; second, the paste " may be boiled in a water bath, with the addition of an infusion " of coffee, and of a quantity of sugar, so as to make a kind of " liquid confection; and, lastly, by further concentration it may " be formed into drops or 'bonbons.'" Essences and various flavouring ingredients may be added if necessary.

[Printed, 4*d*. No Drawings.]

A.D. 1855, October 1.—N° 2191.

MUSGRAVE, John Riddel, MUSGRAVE, Robert, and **MUSGRAVE, John.**—" Stoves for cooking and heating."

Part of the Specification is occupied with improvements upon a former stove, not particularly suitable for cooking purposes. In the cooking stove, " the fire is enclosed by sliding doors, so " that the whole of the front of the fire may be used when neces" sary for roasting; or the lower door may be closed and the " upper half of the fire used; or if both doors be closed, the top " only of the fire will be exposed. A small space between the " sliding doors affords the means of regulating the admission of " air to the fire; the sliding doors which shut in the fire may " be made to move in a horizontal or vertical direction, or on " hinges, or one vertical and the other horizontal. The boiler of " the stove forms the bottom, back, and one side of the fire-place, " and is cast with ribs projecting edgeways into the fire; the " space between these ribs is filled with blocks of fire-clay, or " the ribs may be cast deep and close together, so as to dispense " with the fire-clay. The outer surfaces of the boiler are further " heated by the hot air and products of combustion, which pass " off from the fire, and are carried round the boiler on their " way to the chimney or flue." " Another arrangement is " to construct the stove with the fire in the centre, an oven " at each side, and the boiler beneath the fire. The heat " passes to the right and left round the sides and under the " bottom of the ovens; the two currents meet under the boiler, " where they unite and pass up into the chimney at the back of " the fire. Another improvement consists in so arranging the " hot plate that fuel may be supplied to the fire without disturb" ing the cooking vessels placed thereon. Immediately over the " fire is a moveable plate, which is made to slide in grooves, and " pass beneath the surface of the hot plate, so as to expose a

" portion or the whole of the fire beneath. The lower part of " the oven of this stove is fitted with a flat tube opening to the " external air; a similar tube is fitted to the upper part com- " municating with the flue. Both the apertures are covered with " sliding plates to open or close them at pleasure; when open " a current of air passes through the oven, and carries off the " steam and smell arising from the roasting to the flue. The " side of the oven next the fire is fitted with projecting ribs of " metal, with or without fire-clay," and "the back or other parts " exposed to the heat may be similarly fitted, if required. Ad- " joining the roasting oven just described is a smaller oven for " baking. At the upper part of this oven is a plate of iron, by " which the heated vapour from the fire may be shut off from " the baking oven," and caused to "circulate only round the " roasting oven. The space above the stove communicating " with the chimney is fitted with a ventilator, to carry off the " steam and vapour which arise during the process of cooking; " the ventilator is made to adjust by hand, and may either " communicate with the chimney or with a tube fitted for the " purpose."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1855, October 4.—N° 2222.

OVER, HENRY.—(*Provisional protection only.*)—"Gauge knife."

The inventor thus describes his invention:—

"The chief object of this invention is to facilitate the paring of " potatoes, and prevent the great waste which generally occurs in " preparing that root for the table. To this end, I propose to " construct knives with a guard, which will stand parallel to and " in front of the knife edge, and guage the depth of the cut, as " in a spoke-shave. This guard I make capable of shifting round " the knife, or I mount the knife blade loosely in the handle (to " allow of its being shifted to suit the position of the guard), and " fix it by a binding nut. By either of these means I am enabled " so to adjust the parts relatively to each other as to ensure the " paring or cutting off of a given thickness of the potatoe. Or " I can turn the blade or the guard round to suit a left-handed " person."

[Printed, 4*d*. No Drawings.]

A.D. 1855, October 9.—Nº 2258.

GOLDNER, Stephan.—"Cooking and preserving animal or " vegetable matter."

"A hollow tray or vessel is formed of such depth as may be " required for receiving the metal cases which contain the matters " to be cooked and preserved. This tray or vessel is heated ex" ternally by steam in a jacket or by other heated fluid. Over " this tray or vessel is applied a moveable cover, the edges of " which enter a sand joint, or are otherwise formed, so as to retain " the heated atmosphere under this cover. The cases containing " the animal and vegetable matters are placed in the tray or " vessel and heated therein, thermometers being used to indicate " the temperature; and there is an outlet to admit of the escape " of the confined air from under the cover, and also the vapours " arising from the animal and vegetable substances, such outlets " being regulated by a cock or valve."

The tray is preferably of such a size as to contain two rows of vessels only, so that the vessels may be heated at the sides. The cover to the tray fits into a sand joint. The heat may be applied by steam pipes or hot water pipes or otherwise.

[Printed, 4*d*. No Drawings.]

A.D. 1855, October 10.—Nº 2268. (* *)

HÉBERT, Denis.—(*A communication from Alexis Lurine.*)— " Heating and arranging ovens."

"This invention consists in a manner of heating ovens by the " waste heat from a steam boiler furnace. After that the flame " and heated gases have circulated in the flues round the boiler, " they enter tubes of cast iron or other material placed in a " chamber under the first oven; from these tubes the heated " gases pass into a chamber on the top of the first oven and " under the second oven, and from thence into a chamber on the " top of the second oven, so that each of the ovens is heated by " two chambers, one placed under and another over the said " oven; and in these chambers there is placed a copper steam " pipe, communicating at each end with the boiler, the object of " which is partially to heat the ovens; and from these steam " pipes there are branches which communicate with the interior " of each of the ovens, so that a jet of steam can be thrown on to

" the surface of the bread while it is baking for the purpose of " improving its color."

[Printed, 6*d*. Drawing.]

A.D. 1855, October 12.—N° 2279.

CLARK, John.—(*Provisional protection only.*)—" Cooking ap-" paratus for the pocket."

A " drinking cup, egg stand, spirit case, coffee strainer, blow-" pipe heating apparatus," and other articles are arranged to fit inside a metal case, which may be used for cooking. There may be two such cases, one inside the other. The case is preferably of oval section with one side " pressed in or formed concave," and of a capacity of a pint or a pint and a half. It has a tightly fitting hinged cover. Slides into which legs may be fitted are attached to the bottom. The heating apparatus is as follows:—A "blowpipe" proceeds from the top of a closed vessel containing spirit. This spirit is heated by the combustion of spirit in a shallow saucer outside. It is volatilised, and the vapour drives out a thin jet of spirit into the flame through the blowpipe. The whole apparatus may be carried in the pocket.

[Printed, 4*d*. No Drawings.]

A.D. 1855, November 7.—N° 2507. (* *)

DRAY, William.— (*Provisional protection only.*)—" Improve-" ments in apparatus for heating, baking, and drying."

The invention " consists in surrounding a vessel or chamber " with a serpentine or worm-like flue, and in causing heat from " a furnace or fire-place, or hot air, or other heating medium to " travel in the flue round and round the vessel prior to its finding " its exit into the atmosphere through a chimney or not. The " shape of the vessel will of course vary according to the work " it has to perform." " There is an outside casing to the flue, and " it is covered, if need be, with some non-conducting material, to " prevent, as far as may be, heat passing off from the vessel or " chamber to be heated. The whole may be mounted upon " wheels, and made to form a portable apparatus."

[Printed, 4*d*. No Drawings.]

A.D. 1855, November 16.—N° 2582.

CRUM, Charles, and PAUL, Charles.—" Making bread."

The invention " consists in taking the dough after it has been

" mixed and kneaded in the usual way for making bread, and " keeping it in fermentation for about six hours or more, until it " has reached the acetous state, and become unfit for use in the " ordinary process, when we add to it one-fifth of its weight of " dry fresh flour, and without any additional water, mix and " break it rapidly and very thoroughly through rollers, cut and " pierce it in a cutting machine or by other means, and after a " slight fermentation in an uncovered state exposed freely to " the air, say, for thirty (30) or forty (40) minutes, according " to the temperature of the room, to raise it, bake it in a quick " oven, which should be ventilated by an open door or other " means of admitting and discharging the air freely. By this " process a superior article of bread is produced. We use in " making the dough about ninety-five (95) pounds of water to " two hundred (200) pounds of flour, and from this weight make " usually two hundred and eighty-two (282) pounds of baked " bread. The invention is applicable in making bread from any " kind of flour, of which bread may be made, producing the " same beneficial result in the use of all kinds."

[Printed, 4*d.* No Drawings.]

A.D. 1855, December 5.—N° 2735.

FELL, Thomas Mara.—"Ship's cooking and distilling ap-" paratus."

This invention refers principally to improvements in distilling apparatus for ships, but an improved cooking apparatus in connexion with that for distilling is described. By means of dampers, the heat can be shut off from the cooking part or from the distilling part, or both can be used at once. The fire has above it a hot plate, and at its side an oven. The flue curves downwards at the back, and makes a circular sweep through the boiler, at the top of which are vessels for cooking. Distilling apparatus is connected with this boiler, but a special boiler for distilling is also described.

[Printed, 10*d.* Drawing.]

A.D. 1855, December 7.—N° 2763.

CRANSTON, Hudson. — (*Provisional protection only.*) — " Manufacturing lozenges."

"The ingredients of which the lozenges are made are placed " upon a flat surface or table, immediately over which a series

" of cutters or hollow punches of any desired shape are disposed " and held between guides in a suitable framing. The aforesaid " cutters or punches are connected to a crank shaft by a rod, " so that by imparting motion to said crank shaft it will produce " reciprocating movement of the aforesaid cutters, the downward " pressure of which upon the ingredients beneath cutting the " same up into pieces of the desired shapes and forms, and " simultaneously with the upward movement of the cutters the " table is drawn forward, so as to present another portion of the " materials to the action of the cutters; the lozenges thus cut " being discharged through the upper ends of the several cutters " as they become filled by each successive descent of said cutters, " or otherwise as may be found most convenient."

[Printed, 4*d*. No Drawings.]

A.D. 1855, December 11.—N° 2803. (* *)

CLARKE, Samuel.—" Improvements in lanterns for affording " light and for cooking."

The perforated bottom of the lantern is made with as many sockets as there are candle tubes to be used, the tubes " being " similar to those used in candle lamps." Above the tubes a cone descends into the lantern from the centre of a perforated plate. The cover of the lantern " folds back on a hinge or joint," and below the cover the upper part of the lantern " is formed " suitable for receiving a vessel or pan for cooking purposes," which may be " of such form as to be shut in by the cover," or " may require the cover to be open." Sometimes the lantern is divided by vertical partitions into as many compartments as there are candle tubes; each partition is made of bright metal so as to serve as a reflector, and a " conical opening " for each tube is to be formed in the perforated plate.

[Printed, 1*s*. Drawings.]

A.D. 1855, December 13.—N° 2819.

LITTLE, John.—(*Provisional protection only.*)—" Heating and " cooking apparatus."

A cylindrical casing has at bottom a fire-grate of the usual sort, and at top a discharge flue with a damper. Within this is an inner chamber, rounded off below, and of sufficient size to leave a space between it and the outer casing. Within this receptacle cooking is carried on. A tube above conveys away the steam, etc.

from the articles cooking. A similar arrangement of inner and outer chambers may form a "portable cooking apparatus" to be placed on a fire.

[Printed, 4*d*. No Drawings.]

A.D. 1855, December 24.—N° 2911.

OUDIN, SYLVAIN MATHURIN GILLET.—(*Provisional protection only.*)—"Making bread."

"This invention consists in the use of the water bath and
" mechanical apparatus for treating a portion of the bread dough
" in order to augment the produce of flour; likewise in using
" galvanized sheet iron in all those apparatus for protecting the
" dough against rust. The mixture of the dough and water is
" effected in a kneading trough of galvanized sheet iron of a
" prismatic shape; at coming out from this apparatus, the dough
" is placed on a metallic filter, where a stamper moved mecha-
" nically or by hand, forces the dough to sift, and thus to mix and
" unite thoroughly. The dough thus sifted is taken to a cylin-
" drical recipient, forming the reservoir of a water bath. The
" water surrounding this reservoir is heated by an internal fire;
" the effect of that fire is to augment the volume & produce of
" the dough contained in the reservoir. That dough is then
" mixed with others kneaded by the usual process, & the whole
" is baked together."

[Printed, 4*d*. No Drawings.]

A.D. 1855, December 24.—N° 2913.

SYMONS, WILLIAM.—"Roasting jack."

The patentee says:—

"This invention consists in this, that instead of the pinion to
" which the meat is hung being worked in connection with the
" ground and crown wheel, as in the old suspension jack, I
" hereby provide an additional pinion for the purpose of working
" the ground wheel only and carrying the meat, whereby I
" obviate the objection that as the mechanism gets worn by the
" weight of the meat, the workings draw away one from the
" other; whereas by the adoption of this invention, this ad-
" ditional pinion, which has nothing to do but work in the
" ground wheel and carry the meat, is not liable to the objection
" aforesaid."

[Printed, 6*d*. Drawing.]

A.D. 1855, December 29.—N° 2946. (* *)

LANGE, WILLIAM.—(*A communication from John Lange.*)—
" Biscuit ovens."

" The improvements consist in the employment of a number of
" small fire-places, the heat from which is conducted by tubes or
" pipes over and under the upper portion or web of an ordinary
" endless travelling wire cloth, which is carried by large drums at
" each extremity of the oven. The dough is laid on this cloth
" and traversed slowly through the oven, between the several
" heating pipes herein-before referred to, and issues from the other
" end of the oven completely baked. The biscuits during the
" process of baking may be subjected to the action of steam blown
" through the oven, for the purpose of improving their color or
" appearance. Suitable heat indicators and regulators are also
" adapted to each of the several fires, for the facility of observing
" and regulating the heat of the oven."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1855, December 29.—N° 2947.

BROWN, WILLIAM.—" Culinary vessels."

Vessels of all sorts may be made double, so that they have an enclosed air space all round them, except at that portion of their surface when the heat is applied which is made of a single plate. An oven is described for use on a hot-plate; it has no bottom, and the article to be baked is placed on the hot plate and covered with the oven, which is made with an enclosed air space. A " dutch oven " or similar article which does not require to be placed on the fire, may be made in the same way. Both the interior and exterior surfaces of these double vessels should be of bright metal.

[Printed, 8*d.* Drawing.]

1856.

A.D. 1856, January 15.—N° 110.

BAKEWELL, THOMAS HILL.—" Ventilating, warming, and
" cooling rooms and other places."

A ventilating machine is described, in which the air may be heated by passing it through a "calorian." This apparatus seems to consist of a pipe passing backwards and forwards through a furnace. It is stated that "it may further be brought into "operation, as regards the heating power of the machine, for "baking or any cooking purposes."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1856, January 24.—N° 193.

PETTIT, George Brooks, and SMITH, Henry Fly.—"Gas "heating apparatus."

This invention relates to "combinations of apparatus for obtaining heat from gas mixed with atmospheric air before "ignition," and consists in "inserting into or adding to the top "of a pipe (open at bottom for the admission of air through "perforated or other apertures, and to a supply of gas which is "conducted through a tube, the mouth of which rises above the "apertures for the admission of air) various forms of burners, to "suit the particular heating purposes to which the apparatus "may be required to be applied."

More than a hundred and fifty forms of burners are shown in the drawing, of which those mentioned as available for cooking purposes are as follows:—

A large T-shaped burner, fitted below a shelf, with a second smaller burner over the shelf.

A flat table with a long burner fitted below it, and supplied with gas by the supporting pieces of the table.

A burner of any form below an iron disc, against which the flame spreads. The matter to be cooked is placed either under or over the burner.

A disc of metal has attached to it a burner. The disc is mounted with a flexible handle, so that the heat can be applied whenever required.

Two iron cheeks fitted over a long gas burner are lined with metal gauze; meat is placed between them to be cooked.

A sheet of wire gauze is fixed over a row of gas burners. One or more such sheets may be placed in various positions for roasting, etc.

A roasting chamber heated by gas burners within it may be formed with a double casing holding water.

A gas gridiron may be made with bars fitted with burners. Gas is supplied through a flexible tube fixed to the handle.

An oven may be lined with Dutch tiles, and heated by any suitable burner.

A portable cooking apparatus may be made with a moveable cover, which can be placed over a small table, under which are burners. A glass plate may be fitted in the cover to show the inside.

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1856, January 29.—N° 244. (* *)

WALTON, JOSEPH FOWELL, and LE FRANÇOIS, HONORE.—"Improvements in cleaning forks, spoons, stew-pans, and other "culinary utensils."

"The articles to be cleaned are placed in drums or cylin-"ders containing suitably formed brushes, which revolve with "the cylinders or drums, the articles to be cleaned being held "stationary, while the cylinders or drums or brushes revolve. "The cylinders or drums are mounted on an axis or on axes, and "motion is given thereto by means of a winch handle or by a "crank." "For cleansing stew-pans and other culinary utensils, "the brushes are so mounted, that some of the brushes are "caused to cleanse the inside while others are caused to act upon "the exterior or outside thereof simultaneously, and in order "that the machine may be capable of cleansing vessels of different "dimensions, the brushes are made and mounted so that they "may be made to approach towards or recede from each other "by means of racks and pinions, or by screws or wedges in lieu "thereof." The drums, or cylinders, or discs "may be all mounted "on one axis and form one machine, or each one may be mounted "separately, and be complete in itself and independent of the "other. The axes may be either driven at once by a winch "handle or crank axis, or toothed wheels or fly wheel may be "employed in such cases where extra speed or power be required."

[Printed, 10*d.* Drawing.]

A.D. 1856, February 11.—N° 355.

STEVEN, THOMAS.—"Kitchen ranges."

A coal-box with a bottom sliding in vertical guides is affixed to a grate. The object of this is to raise the burning fuel as it is consumed. The bottom of the grate is made double, and one grating slides over the other, so that the openings to admit air may be narrowed. Cooking ranges have the front of the fire-place closed by doors with ventilators in them. The bottom of the grate is formed into a "dish-shaped vessel or hopper" which is moveable, and can be raised by a rack and pinion or otherwise. Heat is admitted to the oven by "long vertical openings" "at "the sides of the fire-place." The flue is at the back. The top of the range forms a hot-plate. A metal cover may be placed over saucepans on the hot-plate. In this cover is a hole to allow steam, etc. to escape. The chimney is closed in above the range, but there are several openings with conical covers to let steam, etc. to pass away. The door of the grate may fold downwards, and form a shelf on which a saucepan, etc. can be placed.

[Printed, 1*s*. Drawings.]

A.D. 1856, February 18.—N° 408. (* *)

JONES, Moses, ROWE, William Broad, and PERRINS, William.—(*Provisional protection only.*)—Ranges.

"This invention has for its object an improvement in ranges, "and is applicable where two ovens are constructed to a range "one above the other. The improvement consists in causing the "heat and products from the fire of the range to pass over the "upper oven, then to descend and to pass under the lower oven, "then to ascend and pass between the two ovens, and away by a "suitable flue into the chimney; or, in place of passing under the "lower oven, before passing between the two ovens, they may "pass between the two ovens before passing under the lower "one."

[Printed, 4*d*. No Drawings.]

A.D. 1856, February 23—N° 467.

JONES, Robert Baker.—"Cooking apparatus."

A "portable kitchen" is described. "There is a fire-place "in front, the sides of which slope or recede at an angle, "this fire-place can be removed from the apparatus, if re"quired, and may be employed for heating apartments. The "sides consist of hollow vessels, provided with taps, which "may be used to contain soup, and in these vessels fit other "vessels wherein boiling can be carried on. The fire-basket

" or place only extends back a short distance, [and] the space " between the boiling vessels and the back of the apparatus is " covered at top and bottom and forms an oven; a ventilator " is placed in the door. The side vessels, oven, and fire-basket " drop into a bed without resting on the bottom thereof, and " the space between the bottom of the vessels and of the bed may " be used as an oven, access is gained to it through a door in " the back. The front of the fire-basket is open, and the pro- " ducts of combustion are carried in a flue over the top of the " oven into a portable or other chimney. In the flue over the " oven is an orifice, which may be fitted with a cover, or may " have placed therein a vessel for frying or boiling."

For roasting, a semi-circular "folding screen" is placed " upon a similarly shaped pan in front of the fire-basket. In " order to expedite the roasting, this screen may be fitted with a " cover. The whole of the baking dishes, screen, flues, and " culinary utensils, knives, plates, &c., fit into the oven and " boiling and baking vessels."

[Printed, 10*d*. Drawing.]

A.D. 1856, March 1.—N° 536.

CHAPMAN, William, and TEAGER, John Henry.—(*Provisional protection only.*)—"Apparatus for cooking animal and " vegetable substances, and for heating steam closets."

A "steamer or vessel" "is connected with a pipe from a " boiler, by means of a spicket joint or any other joint. The " steam is conducted into the steamer or vessel at the lower part. " The lids or covers and moveable parts of the steamer or vessel " are made with projecting rims, which dip into troughs formed " on the steamer or vessel and on the lid or cover of the same. " These troughs are supplied with water, which makes them " steam-tight joints, and prevents the escape of steam by the " lids or covers and moveable parts, and the troughs are made " with the outer sides higher than the inner sides, or so con- " structed that any condensed steam accumulating in them will " run into the steamer or vessel. The steam passes out of the " steamer or vessel, through an aperture and a spicket joint or " any other joint, into an exit pipe or passage, which is connected " with a steam closet, or with a series of pipes enclosed in a " closet made of metal or any other material. The steam after " passing round and heating the closet, or through and heating

" the series of pipes, is conveyed into the chimney or any other " convenient place. When the steam closet is not required, the " steam which passes into the exit pipes or passages is conveyed " into the chimney or any other convenient place. When two " or more steamers or vessels are used, sliding valves are adapted " to the exit pipes or passages, to connect or disconnect the " steamers or vessels as required, and to prevent the escape of " steam from any exit pipe or passage not in use."

[Printed, 4*d*. No Drawings.]

A.D. 1856, March 7.—Nº 570.

DOWNIE, JOHN.—"Moulding or shaping metals."

Amongst the articles to which the process is applicable, "camp " ovens and covers, three-legged pots, kettles," and frying-pans are mentioned.

The pattern for the mould is mounted horizontally in bearings, and is fitted with an eccentric or other contrivance which will raise it and pass it "between two opposite edge surfaces," which " embrace the pattern longitudinally along its diametrical line." The upper surface of the plate forming these edges is planed true, to present a level surface for the "parting."

"The 'flask' or sand box for one half of the mould is placed " upon the ramming plate, and the pattern is turned round, so " that the action of the excentric portion thereof on the bearings " may gradually elevate it to its diametrical line. A central " portion of the excentric is made concentric with the axis of the " pattern, so that when it reaches this part it ceases to elevate it, " and by causing the pattern partially to rotate on the concentric " portion, the surface of the mould is 'sleeked' or made smooth, " and the further turning of the pattern then lowers it, leaving " the half mould in its finished condition. The parting of this " half mould" is formed "by the unaided effect of the true sur- " face plate on which the flask has been rammed up, so that no " cleaning up" "is required after the half mould leaves the " machine; various plans are employed for raising the pattern " and causing it to rotate. In cases where the form of the pattern " prevents rotation, rectilinear or other motion may be adopted " for obtaining the same result." And in cases where, from the shape of the pattern, the finishing cannot be effected by moving the pattern, "the rotatory or rectilinear movement may be adopted " for merely withdrawing the pattern from the mould."

The sand or moulding material may be prepared with ingredients which render unnecessary the ordinary coating of "charcoal " blackening."

[Printed, 1*s.* 4*d*. No Drawings.]

A.D. 1856, March 11.—N° 587.

TOLHAUSEN, Alexandre.—(*A communication from Hiram Berdan.*)—" Improvements applicable to bakers' ovens."

" This invention consists in furnishing an oven with an endless " chain of shelves, which has a continuous ascending and descending motion imparted to it by the weight of the bread or other " substance or substances undergoing the baking process on the " shelves, or by any other means, and which is thereby, with the " application of suitable gearing, caused to give motion to " the machinery, by which doors suitably arranged are opened " and closed in proper succession and at proper intervals of time " to admit into the oven the bread or other substance or substances to be baked, and to draw the same from the oven after " it when they have been baked for a certain sufficient length of " time. The bread or other substance or substances to be baked " is or are placed on a series of cars or carriages, which enter at " suitable intervals into a door at the upper part of the oven by " one branch of a suitably arranged railway, and are received on " such shelves at the upper part of the descending side of the " chain as are at the time passing the said door; and as the " loaded shelves severally arrive near the lower part of the oven " they are drawn out through another door on to the lower railway, on which they run to a suitable place to be unloaded; " after which they are run on another branch of the lower railway " to a door, by which they are admitted to such shelves on the " lower part of the ascending portion of the chain as are at " the time passing the said door, to be carried by the ascent " of the said shelves to a door, at which they are drawn out to a " branch of the upper railway, and after being conveyed to a " suitable place for loading, again are drawn into the oven through " the first-mentioned door opposite the upper part of the descending part of the chain. The velocity of the motion of the chain " of shelves is so regulated " by a pendulum, fly-wheel, or otherwise "that the time occupied in the descent of the cars from the " first-named door to the second is sufficient for the baking."

The shelves are secured by being fixed to the links of a pair of chains which are fastened to the spindles of rollers. These rollers work in grooves fitted round the oven, and it is of a rounded shape at top and bottom, so as to allow the chains to pass along.

[Printed, 1*s*. Drawings.]

A.D. 1856, March 18.—N° 649.

APPLETON, PETER.—" Knives for peeling apples, potatoes, and " other fruits and roots."

" This invention consists in attaching to the side of the blade " of a knife a guard or plate, the edge of which is parallel with " and projects slightly beyond the cutting edge of the blade. " When the knife is in use, the guard rests on the surface of the " fruit or root, and prevents the blade from penetrating to a " greater depth than the distance between the cutting edge and " the guard, which distance is adjusted according to circumstances. The paring removed passes between the blade and " the guard, and then away through a slit or opening in the " guard."

[Printed, 6*d*. Drawing.]

A.D. 1856, March 20.—N° 669.

TRUEMAN, JOHN.—" Ovens for baking."

" The body of the oven consists of a chamber of wrought or " cast iron of any desired shape, surrounded by brickwork, a " space being left between the brickwork and the top and sides " of the oven for the free circulation of the heated air, which " passes off by a flue or chimney in the centre above the oven. " The bottom of the oven is laid with sheets of iron, carrying a " layer of sand and tiles or slabs of stone, and may be constructed " by means of a tray to draw out the batch bodily, or be made " on the stationary principle, as found most desirable, in which " latter case an ordinary oven door and fittings will be required. " The oven is heated by a small stove, placed in a space or " chamber immediately below the oven bottom, which may be " fitted with a deflector, for the purpose of difusing the heat " more evenly over the entire inside surface of the oven or " hearth. The stove or furnace is supplied with fuel through a " suitable opening or passage in the brickwork foundation. The " supply of atmospheric air to the furnace is obtained from a

" number of pipes or passages, which open at their converging " ends into an air chamber immediately below the grate, whilst " their outer ends may be conducted outside the oven or building " to any desired distance. A valve either at the side or at the " top of the oven, communicating from the interior into the " space surrounding the same, allow of the exit of steam and " vapor, which then escapes by the flue or chimney. The hearth " or bottom of the oven is supported on suitable cross bars or " girders, passed into or through the surrounding brickwork. It " is proposed to apply a thermometer to the oven for the purpose " of indicating the heat thereof."

" The same principle of heating " is " applicable to continuous " biscuit baking, domestic or camp ovens, and the heat may be " derived from ordinary fuel or from gas."

[Printed, 10*d*. Drawing.]

A.D. 1856, March 22.—N° 675.

PRATT, Henry.—Flour mills and bakeries.

A full description is given of an establishment in which corn is ground, flour prepared, and bread made. The various operations are carried on in suitable rooms according to an arrangement detailed. The ovens are on the ground floor, and the kneading rooms above them. The loaves are sent down to the ovens and raised again by a lift. The ovens are in sets of four, each with a separate fire, but have their flues united in a central chimney. Round the ovens are railways by which the bread is carried and fuel for the furnaces supplied. The steam from the bread is carried down to the fire to assist combustion. The oven doors " are solid wood or hollow metal stops." Before each set of ovens is a " small moveable table " for convenience of filling them. To each set of ovens is a " mixing and beating apparatus," driven by the motive power employed for the mills. A vertical shaft carrying pegs and scrapers works in a wooden tub, into which flour and other materials for making dough are supplied from hoppers. Water is supplied in measured quantities, either hot or cold, the hot water being obtained from vessels placed in the flues. The mixed dough is allowed to fall out upon a table by drawing two slides in the vessel. On this table are shallow troughs in which the dough rests, while it is acted on by the beating apparatus. This is of the same description as one described in the Specification of No. 2566, A.D. 1853. It consists of a series of wooden levers, acted upon at their shorter ends by tappets. "The arms rest on a sway," which "has a counter-"balance, and is easily lifted up" to remove or supply dough. From this machine the dough passes to a weighing table, thence down an inclined shoot to the moulding table. From the moulding table it is conveyed by the lift to the ovens.

[Printed, 2*s.* 8*d.* Drawings.]

A.D. 1856, March 25.—N° 710.

SMITH, GEORGE HEDGCOMB.—(*Provisional protection only.*) —"Saucepans, kettles, and other like culinary utensils."

"The object of this invention is to provide a means of access "to the interior of pots and kettles, and also to facilitate the "egress of steam without removing the lid or cover therefrom. For this purpose there is an opening in the lid "of sufficient size "to admit of the insertion of a spoon in order to take up a por-"tion of the contents of the pot and ascertain the progress of the "cooking operation." This opening has "a cover with a sliding "plate attached, by preference, to the knob of the lid, and capable "of moving round with it, to cover or uncover the opening as "required. This opening will permit of water or other liquid "being added to the contents of the pot without the lid being "removed, and when the contents are boiling rapidly the partial "uncovering of the opening will allow the steam to escape, and "prevent the contents from boiling over. Another advantage "of this arrangement is that the edible matters contained in a "saucepan or pot are not liable to become smoked while under "the operation of cooking."

[Printed, 4*d.* No Drawings.]

A.D. 1856, April 1.—N° 786.

GRAY, JOHN.—"Steam boilers, furnaces, and fire-bars."

The furnaces and fire-bars described are available for bakers' ovens. Instead of building the sides of furnaces of brickwork, an iron frame is built into the side, so that a block of iron or fire-brick can be slid into it. This block can be turned or changed when worn out. The blocks may be perforated to admit the passage of air. The bridge may have in it a series of slots, so that part of the flame passes through them. The bars have "diagonal grooves across their upper surfaces" to admit air to the fuel. The bottoms of the grooves are inclined to let the ashes pass down. The ends of the bars next the bridge are turned up at an angle of abont 45°, and to a height of 6 or 8 inches, and are kept in position by "distance pieces." By this means air is admitted to aid in the combustion of the smoke. A baker's oven with the improvements is figured; it has a boiler above the furnace.

[Printed, 1*s*. Drawings.]

A.D. 1856, April 15.—N° 898.

JEFFRIES, Thomas.—"Cooking stoves."

The flues are led over the oven, thence down along the side furthest from the fire, then along the bottom, and thence by a "return flue, external of the before-mentioned flues, away to the "chimney." To equalise the heat where the oven is in contact with the fire, "double plates, having an air space between them," are used in the side of the oven.

The second part consists "in forming the top of the stove with "loose pieces" "to fit in and between the holes for the reception "of the saucepans;" "which loose pieces can be removed and "form" "openings to receive saucepans" and vessels of larger size.

"A further improvement" consists in forming fire doors "just "above the bars and the fire." These can be opened to reduce the draught, or for the purpose of feeding the fire.

[Printed, 10*d*. Drawing.]

A.D. 1856, April 24.—N° 983.

WOODCOCK, Thomas, and PUNSHON, John Killingworth.—(*Provisional protection only.*)—"Machine for cutting "and slicing bread."

The machine "consists of a bed upon which the loaf or other "substance is placed, and held against upright supports. A "knife or knives are made to pass forwards and downwards at "the same time, and by the same movement, by means of two or "more parallel connecting rods connecting the knife or knives "at both ends to the bed, at one movement cutting through "the loaf or other substance, cutting one or more slices at "once according to the number of knives employed. On the "parallel rod furthest from the handle is placed a stop, regulated by a screw to give the thickness of the slice."

[Printed, 4*d*. No Drawings.]

A.D. 1856, May 2.—N° 1044. (* *)

GORDON, ALEXANDER.—"Evaporating, boiling, and dis-"tilling."

This apparatus relates to a method of combining reflecting and refracting lenses in such manner that the heat of the sun's rays is for hours continuously thrown upon a vessel or "thermheliostat," placed in or near its focus, to evaporate, boil, distil, and to generate steam.

Any bright hollow surface like the section of a hollow globe, and six or seven feet in diameter at the mouth, will serve as a reflector. In its focus, suspended "from a crane or davit, is a "still in connection with a worm, and tub; the mouth of the "reflector being kept directly open to the sun's rays, the heat is "concentrated on the still, fresh water is distilled off from the "salt water, and when filtered through charcoal becomes fit for "drinking." The reflector is supported on two bearings, and is driven by clock-work so regulated as to keep "for one or more "hours of the day, the mouth of the reflector fully open to receive "the sun's rays as he changes his place in the heavens." As the sun advances in the afternoon, the reflector dips to the westward at a corresponding rate.

This method may be applied to cooking.

[Printed, 10*d*. Drawing.]

A.D. 1856, May 16.—N° 1163.

EABORN, EDMUND, and ROBINSON, MATTHEW.—(*Provisional protection only.*)—"Machinery for grinding or reducing "sugar."

The machine is to be used for grinding sugar "for confec-"tionary purposes." The inventors "mount in a suitable frame "an iron roller, cut or formed on its periphery somewhat after "the manner in which millstones are faced. This wheel or "roll" is mounted vertically, and is "from six inches to a foot "across the face, and of a suitable diameter, and about parallel "with the axis of the roll." The inventors "hang upon a centre "a piece of iron of the same area as the periphery of the roll, "about one fourth of its circumference." "This counter plate "is held against the face of the roll by a set screw at the bottom, "and just above" a "small auxiliary roll" is fixed, and above this a hopper.

The sugar is broken up and placed in the hopper, whence it is drawn down by the small roller, and thence between the large roller and the "counterplate," which is, as well as the roller, grooved. The process is repeated till the sugar is sufficiently fine.

[Printed, 4*d*. No Drawings.]

A.D. 1856, May 23.—Nº 1231.

GEDGE, John.—(*A communication from François Victor Grousse.*) —(*Provisional protection only.*)—" Gridiron."

"On a framing supported by legs," are placed "moveable " grates, gratings, or bars, two semicircular supports, forming " an elevation, with split rods, these supports being knee'd be" neath the framing, are fixed to two cramps. The bars are " fixed or fitted into catches. Below the moveable grates are " ash-pans, and a transversed spit, provided with hooks, passes " from one of the semicircular supports to the other, and a " trough or dish is so placed as to receive the fat or gravy of " the articles while cooking."

[Printed, 4*d*. No Drawings.]

A.D. 1856, June 3.—Nº 1316.

WESSEL, Christian Rudolph, and KUKLA, Francis Xavier.—" Vapourless glow-heat disseminator."

"The apparatus consists of a small or large argand gas or oil " burner, placed in a metallic cylinder. At a proper distance " over the burner is fixed a metallic conical or round body, for " the purpose of dividing the flame, so that instead of a per" pendicular position it assumes a radiating one, and thereby " permits the oxygen of the air to mix freely with the flame. The " cylinder is placed in a metallic jacket, which latter forms also " the shape of the heat disseminator. The jacket is open at the " bottom, partly for admitting to the cylinder the requisite cold " atmospheric air, and partly for admitting the same into the " space between them both, the atmospheric air coming in contact " with the surface of the cylinder under the effect of the glow" heat, circulates and imparts to it instantaneously its heat, which " then issues purified thro' the various openings at the top and " sides of the jacket."

Any combustible gas or hydrocarbon may be used.

The apparatus may be applied to the heating of bakers' ovens, for "roasting and cooking" and various other purposes.

[Printed, 8*d*. Drawings.]

A.D. 1856, June 5.—N° 1340.

LE BRETON, Jules.—(*A communication from François Alfred Chatel Jeune.*)—(*Provisional protection only.*)—"A photo-gas, or "apparatus with air draughts of hot oxygen when applied to oil "lamps with wicks."

Neither the description nor the drawing is very intelligible. Apparently a metal ring fits on the top of the lamp and has the lamp chimney fitted on it. Inside this ring rises a somewhat conically shaped hollow piece which would appear to surround the burner. It is said that, "the apparatus by its disposition "transforms all draughts of air existing in lamps into draughts "of hot air, thus causing all the carbured parts contained in "oils to be burnt to a state of gas." "Meat and vegetables" may be cooked by it; but how, is not said.

[Printed, 6*d*. Drawing.]

A.D. 1856, June 14.—N° 1407.

MÈGE, Hypolitte.—"Manufacture of bread."

The object of the process is to obtain superior bread from inferior flour. For this purpose the following means are employed:—The production of "vinous fermentation," the thorough sifting of "the "farinaceous liquid" from the bran, the use of that part of corn producing brown bread in the rough state, the use of "acidu-"lated water," the grinding of the corn by means of "millstones "that crush it thoroughly." When inferior flour is used, ¼th part of the flour is mixed with water, "1 portion of beer yeast "for 200 portions of water" is added, and enough acid to cause the mixture to colour test paper. "When the liquid is at "full "working," the rest of the flour is kneaded in, and the whole allowed to ferment.

When "raw flour" or "flour crushed only once" is used, the bran is sifted out, mixed with sufficient water to convert the whole into dough, yeast, and acid, and allowed to work for 6 hours at 77° Fahr., or 12 hours at 68°, or 20 hours at 59°. The flour is then added, and the whole kneaded up.

In another process, the coarser parts of the flour are soaked in acidulated water, and the mixture sifted, or the water drained off. This may be done by letting the liquid run from a tap on to an oscillating sieve. The parts retained by the sieve are washed over again. An apparatus for this purpose is figured.

There are two sieves one above the other, of different texture. They receive a tilting motion at one end from a cam. The liquid is contained in a vessel suspended over them, which is swung to-and-fro by means of a crank.

[Printed, 8*d*. Drawing.]

A.D. 1856, June 21.—N° 1464.

MINNE, Charles, and COLSON, Amand.—"Improvements "in making bread."

The refuse of corn is squeezed in a press to extract the nutritive matters which are employed in making dough. The press consists of a cylindrical vessel suitably supported, in which works a piston driven by a screw. The proceeds are employed "in the "same quantity as water."

The kneading machine employed consists of a horizontal shaft, supplied with teeth like those of a comb, and revolving in a cylindrical casing. There is a longitudinal opening to admit and remove the dough, which is expelled by fitting a plate on the teeth of the shaft, and giving the shaft a half turn.

The oven is of brickwork. It has two furnaces below it. The flames are directed by registers upon the bottom of the oven, or to the right and left. In the bottom of the oven is a "large "double register" opened by means of rods. At the sides are other registers and by their action the flames can be drawn through the oven or to either side. The products of combustion from one furnace may be led through a flue over the oven, those from the second furnace under it. On each side of the oven is an "air "box" to allow cold air to circulate and keep the framework cool.

Twelve figures are given of tools for use in bread-making, but they are none of them described. One of them is called "an "obturator, and it is to be placed opposite the furnace," to separate the bread from the oven.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1856, June 25.—N° 1492.

KEILLER, Alexander,—"Articles of confectionery."

The invention "relates to the manufacture or production of "what are known in the confectionery trade as 'pan goods'

" and 'lozenges,' and articles of a generally similar class. In the " manufacture of pan goods according to this invention, the pan, " which is formed with an external steam jacket, is suspended by " overhead links. During the working of the pan it is made to " revolve continuously in any convenient manner, so as to give the " ingredients employed in making the goods the necessary rolling " working action. In one convenient arrangement for effecting " this rotatory action, the bottom of the pan has attached to it an " external stud pin at its centre, and this pin is jointed to a short " crank fast upon the upper end of a vertical shaft. Thus, as " the actuating shaft revolves, the crank action gives the pan a " rotatory swing upon its overhead centre or centres of suspension. " Instead of this mechanical arrangement, the pan may have the " proper motion given to it by a horizontal eccentric, the rod of " which is slotted and set upon a vertical pin, to act as a lever, " the other end of the rod being jointed to a crank pin upon the " bottom of the pan. Steam is supplied to the encircling jacket " of the pan by a flexible pipe, in the usual way; and the bottom " of the pan in the interior is formed with a convexity or prominent bulge, so that the goods being produced are caused to " roll off the central portion of the pan and form an annular " layer in the pan's bottom, and thus spread evenly instead of " falling into a thick mass. In making lozenges according to " these improvements, the punching out of the lozenge discs is " effected by solid punches acting upon a perforated table or " cutting plane. As the dough is laid upon the table, the solid " punches being caused to descend, pass through the dough, and " thence through the corresponding perforations, thus cutting off " the discs or lozenge pieces quite freely and sharply, and obviating " all difficulties as to clogging up of the cutters."

[Printed, 8*d*. Drawing.]

A.D. 1856, July 15.—N° 1658.

LUCAS, Jean Louis, and DE BRIGES, Albert.—" Preparing certain liquid or solid alimentary substances from the " husk of a certain fruit."

The fruit intended is the walnut. The husk is torn up and the pieces put in heaps to ferment, the juice is then pressed out and either bottled separately or placed " in contact with a syrop " or solution of sugar." The liquid may be used for manufacturing beverages of various sorts, it may be mixed with aërated water or employed in making beer. To procure a solid preparation, the fermented husks are baked in an oven and "a solid or pasty aliment or jam" is obtained suitable for food.

[Printed, 4*d*. No Drawings.]

A.D. 1856, July 22.—N° 1735.

BUTCHER, Samuel.—(*Provisional protection only.*)—" Kitchen " ranges."

" This invention relates chiefly to a novel arrangement of hot " plate, which overlaps the open fire-place, and gives to the " range all the advantages of a close fire grate, as respects its " heating qualities, without interfering with the open chimney." The range is provided either with one or two ovens. " When " made with one oven, the heated air passes through an open " grating in the side of the fire-place, and circulates round the " oven, and thence to a central flue leading to the chimney. In " this arrangement, the blower, which is hinged, extends the " whole width of the range; but when a second oven is used, the " blower is contracted in length, and the second oven is set on a " level therewith. The heated air, after circulating round the " first or lower oven, passes by a flue in the side of the range (and " fitted with a damper) up to the second oven, around which it " circulates in like manner, and then escapes to the chimney." " The setting of the hot plate partly over the fire will not interfere " with or detract from the roasting capacity of the cooking range, " the fire being capable of extension to the full length of the fire- " place as in ordinary ranges."

[Printed, 4*d*. No Drawings.]

A.D. 1856, July 26.—N° 1783.

REMINGTON, Henry.—" Gas heating and cooking appa- " ratus."

A vessel shaped like a cask, or of other form, is fitted on a stand above a gas burner. This vessel has a false bottom " form- " ing a chamber for containing the heat." Within the vessel are several "chambers," each communicating with a separate tap outside the vessel. These contain the liquids to be warmed. The remaining space is filled with water. An iron plate is arranged to slide in over the burners, and on this any matter can be broiled. Below the burners slides another pan which receives grease, etc.

[Printed, 6*d*. Drawing.]

A.D. 1856, July 28.—N° 1787.

EABORN, Edmund, and ROBINSON, Matthew.—"Machinery to be used for confectionary purposes."

The first part relates to a mill "for grinding or reducing sugar "for confectionary purposes." A vertical central shaft is revolved by means of bevel wheels from a horizontal shaft actuated in any suitable manner. This shaft is supported at bottom in bearings on a cross-piece, and is slightly adjustable vertically by a screw. It passes through the centre of a bed of stone, the upper part of which is radially grooved like a mill stone. On this bed works a runner, of cast iron or other material, grooved on its under surface. This runner is annular, and is supported by gudgeons fixed to a central boss through which the shaft passes. A slight play is allowed between the boss and the shaft. Over the runner fits a "fence" surmounted by a hopper, the two of which are cast in one piece. The edges of the "fence" fit in a grove in the bed, and it is secured by pins on the sides which take into a catch on the bed. The top of the shaft is surmounted by a conical head, which is kept against a nut on the top of the shaft by means of a helical spring, and is prevented from turning on the shaft by a feather. This head and the interior of the hopper have projections formed on them in such a way that they break up the sugar into small portions before it passes down to be ground by the stones. The screw at the bottom of the shaft allows of adjustment, so that the size of the cut can be regulated. If the machine clogs, the hopper and "fence" may be removed and the sugar cleared away.

The second part relates to a machine for rolling sugar paste, etc. into balls. Two rollers with longitudinal grooves receive the paste from a shoot and roll it into sticks. Thence the sticks fall upon a pair of rollers with grooves around their circumference by which they are partly formed into balls. The balls are completed by a third roller working against the lower one of the former pair. This lower roller is of larger diameter than the other two, and as the three are geared together, its circumference works at a more rapid rate. This causes it to carry away the completed balls and discharge them on an inclined table. The first longitudinally grooved pair of rollers work at a much slower rate than the others, and to ensure the delivery of the sticks, springs fixed to a small roller are arranged to enter the grooves and detach the sticks.

Comfits, etc. are made by shaking the materials in a circular pan with the bottom recurved inwards. The pan is fixed over a steam-chest to which steam is admitted through a hollow shaft on which the apparatus is mounted. The resulting condensed water passes away by a small pipe within the shaft.

[Printed, 10*d*. Drawing.]

A.D. 1856, August 11.—N° 1887.

BROOMAN, Richard Archibald. — (*A communication.*) — "Improved fermenting agent."

Wheat bran is mixed "uniformly to a thick paste" with water at 85° or 90° Fahr., in a room at 85° Fahr. The mixture is put in a covered vessel to stand for 30 hours. For bread-making, rye or maize bran may be substituted for wheat bran.

[Printed, 4*d*. No Drawings.]

A.D. 1856, August 13.—N° 1894.

LESSER, David.—"Apparatus for making 'lozenges' or other "similar articles."

Paste is delivered along an inclined plane to a pair of rollers between which it passes. Thence it goes to another pair between which it is further rolled. Between the two sets of rollers is a box or sieve from which flour or powdered sugar is sifted on to the paste, and in order to dust the under side of the paste the two lower rollers revolve with their lower portions in a box of flour, etc. From the rollers the paste passes to the cutters. These work vertically down on the paste, and receive the necessary movement from a cam. The movement of the rollers is intermittent, to correspond with that of the cutters. The bed on which the cutters act is formed by a roller, with holes corresponding to the cutters passing across its diameter. In each of these holes works a piston. After a lozenge has been stamped into the aperture of the bed, the bed revolves, and the piston falling by its own gravity pushes out the lozenge, leaving the other end of the hole uppermost and ready to receive a fresh lozenge. The finished lozenge falls on to an endless apron, and the scrap paste is received on another apron. A modification is mentioned, but not particularly described, in which the bed may reciprocate instead of rotating, and a knife blade be used to detach the lozenges.

[Printed, 10*d*. Drawing.]

A.D. 1856, August 16.—Nº 1919. (* *)

LILLEY, SAMUEL.—" Improvements in the manufacture of " ships' ironwork, a part of which improvements is applicable to " the manufacture of other articles in iron."

This invention consists in the use of chilled moulds in place of the ordinary sand moulds for the casting of ships' ironwork and sundry other articles, amongst which are mentioned ovens, stoves, and saucepans. The moulds are made "accurate in form and " smooth inside; they are provided, where necessary, with metallic cores which pass into and through them; and the parts of which they are made are joined together, when they are being used, "by methods commonly resorted to in casting processes." The patentee employs for ships' castings either ordinary or malleable cast iron, for other articles ordinary cast iron. He asserts that by the use of chilled moulds the castings "have a greater " hardness on their surface."

[Printed, 4*d*. No Drawings.]

A.D. 1856, August 18.—Nº 1923.

SCOTT, THOMAS.—Cooking.

A rectangular iron casing is made with a double top of two plates. In the upper plate are holes into which the bottoms of cooking vessels fit. These vessels are steam-jacketted and have steam admitted to the steam space by means of a small opening into which the ends of a steam pipe fit. In the lower part of the casing are ovens steam-jacketted in a similar way. The condensed water drips down to the bottom of the casing and is conveyed away. Steam is supplied by a main pipe from a boiler which communicates by means of smaller pipes with the various vessels and ovens. Suitable cocks are provided for regulating the admission of steam to each vessel and to the whole apparatus.

[Printed, 10*d*. Drawing.]

A.D. 1856, August 27.—Nº 1995. (* *)

GIRESSE, JOSEPH MANUEL.—(*Provisional protection only.*)— " Machine to mince tallow & meat."

It is composed of a strong chopping table, at each end of which are fixed grooved pieces to receive the standards which carry the apparatus. The two standards are connected at top by a longitudinal beam. "A revolving shaft formed of a square iron " bar with bearing of round iron is carried by the end standards, " one end being prolonged beyond the standard to receive a " geared wheel, which slides at will along the prolongation." On each side of the shaft is a square-threaded screw, for "the purpose " of enabling the chopping knives to travel backwards and for- " wards over the table." "Also, on each side between the geared " wheels on the main shaft and on the screws, are pinions carried " on small arms, which form part of standards, and having double " the thickness of the geared wheels to enable them to work " with the wheel on the main shaft when it draws back from " those on the screws." "For carrying the chopping knives " there are five uprights grooved vertically, which are placed at " equal distances apart, and kept so by distance pieces across. " Three of these uprights have rollers fixed in their upper ends, " which rest on and roll along the longitudinal beam connecting " the two standards; the middle upright is furnished with two " horizontal arms, at the same height as the arms of the standards " in which are fixed female screws corresponding in position and " size of thread to the long screws," and "in which the latter " work, and enable the chopping knives to traverse the table, and " to be brought over the material to be chopped. In each of the " four intervals between the uprights is fixed a plate, surrounded " by four vertical arms united together at top, under which is " placed a chopping knife, which may be fixed or removed at " pleasure. The knives are placed diagonally, and extend across " the width of the table, and each should be placed in the oppo- " site direction to the preceding one, in order to cross-cut the " material to be chopped. A roller is placed over the upper " junction of the vertical arms of each plate, turning in the " direction of the length of the plate, under which an excentric " passes, which raises the chopping knife and lets it fall on leav- " ing it." The four excentrics which raise the chopping knives are "slid on the square main shaft, each on a different one of its " faces, and are moved along the shaft as the machine works, and " turn with it to raise the chopping machine. Each excentric " is kept under the centre of the rollers last mentioned by a tube " or collar used as a distance piece on each side of it, which are " also slid on to the main shaft, and turn with it. There is a " roller at the middle of each face of the plate (on the side of " the uprights), and another in the same vertical plan on each

" side at the top and in the middle of the connection of the
" vertical branches of the plates; these rollers run in the grooves
" of the uprights." There are likewise rollers let into each upper
" end of the connexion of the branches of the plates, which roll
" against the uprights and preserve their proper distances apart
" during the rise and fall of the chopping knife, and which also
" serve the purpose of friction rollers."

[Printed, 6*d.*]

A.D. 1856, August 30.—N° 2022.

SUTTON, DANIEL.—(*Provisional protection only.*)—" Cooking " kettles."

" This invention has for its object an improvement in the manu-
" facture of cast-iron cooking kettles, and such like hollow ware,
" and consists of casting them each with a partition, which it is
" preferred should rise above the rim or upper edge, and the two
" compartments are covered with two separate lids or covers."

[Printed, 4*d.* No Drawings.]

A.D. 1856, September 2.—N° 2034.

ARON, MAURICE.—(*Provisional protection only.*)—" Leaven."

The new material is termed " sweet pressed yeast." It is composed of " flour of sprouted barley or malt, flour of white beans " or peas, potatoe flour," 86 lbs. of each. These are mixed into a " soft paste " with water at 122° Fahr. Water is added " till a " thin clear paste is obtained." This is gradually raised to 167° Fahr. and then allowed to cool. 6¼ lbs. of gelatine are added when the mixture is at 117° Fahr. The whole is " rendered " active by being allowed to cool or by the addition of water " at 77° Fahr. 11 galls. are mixed with 10 lbs. of previously made yeast in " a few quarts " of warm water. Fermentation then takes place and the process is completed in 12 or 13 hours. The yeast is sifted, rinsed in cold water, pressed, dried, and packed.

[Printed, 4*d.* No Drawings.]

A.D. 1856, September 9.—N° 2101. (* *)

BROOMAN, RICHARD ARCHIBALD.—(*A communication from F. H. Ouin.*)—" An improvement in and apparatus for sprinkling " substances in a state of powder."

For this purpose an implement is used which consists of a hollow handle furnished with a perforated cap; to this cap is fastened a brush of suitable material. The pulverised material is introduced into the handle and passes through the perforated cap to the bristles, by which it is sprinkled. The handle is closed at top, and "pegs for the better dividing of the substance may be " inserted within the handle."

The implement may be used for "flouring, spicing, and sugar- " ing provisions."

[Printed, 8*d*. Drawing.]

A.D. 1856, September 12.—N° 2135.

KORONIKOLSKI, Joseph.— (*Provisional protection only.*)— " Baking ovens."

The oven consists of a cylinder "moveable on its horizontal " axis" and divided longitudinally into "cells." The dough to be baked is placed in iron trays lined with cement. The whole of the cylinder may be divided into cells, or the central part may serve as "an additional fire-place." "The firing is effected by " means of two furnaces placed in the lower corners of a quad- " rangular casing which surrounds the cylinder, and the flues are " so contrived that the heat has to pass from the lower corner " of the casing to the upper and diagonally opposite corner." One furnace may burn coal and one wood, or "with suitable " modifications," the oven may be heated by steam. A toothed wheel is fixed on one end of the cylinder and by a pinion working in it the cylinder may be revolved so that each part of it in turn is exposed to the fire. There is a second casing outside the " quadrangular casing" above mentioned. There are doors at the end of the cylinder for admitting the loaves. For military purposes the oven may be mounted in a vehicle which may also contain other bread-making appliances.

[Printed, 4*d*. No Drawings.]

A.D. 1856, September 16.—N° 2161.

NEWTON, Alfred Vincent.—(*A communication from Eben Norton Horsford.*)—" Preparation of phosphoric acid."

Burnt bones are sifted into dilute oil of vitriol, in the proportions of 500 lbs. bone ash, 400 lbs. vitriol, and 1,000 lbs. water. The mass is left for three days, being occasionally stirred. It is then mixed with a farinaceous substance and slowly dried "up "to the limit beyond which farinaceous matters are affected by "acid." Or, it is mixed with freshly-burnt gypsum, or "stearine "or other fatty bodies," and dried. Or "the mass may be "leached," and the concentrated extract mixed with gypsum, stearine, etc., and dried. The method preferred is that the mass should be "leached" and the extract concentrated to 25° Beaumé. 10 gals. of this liquor are heated to boiling, and 4 lbs. white bone ashes dried. The whole is then boiled down "a little less than half "its original bulk," and cooled down. 76 lbs. wheat flour are next added and the whole mixed up. 16 lbs. potato starch are then mixed in, and the whole sifted, dried, and packed. Various farinaceous substances may be used instead of wheat flour or potato starch, and bone black may be used instead of burnt bones. The preparation may be mixed with "dry alkaline "carbonates," and used "as a substitute for cream tartar and "tartaric acid in the preparation of yeast powder or baking "powders."

[Printed, 4*d*. No Drawings.]

A.D. 1856, September 23.—N° 2228.

WINTERBOTTOM, Robert, the younger.—(*Provisional protection only.*)—"Producing dry barm or yeast."

The following is the entire specification:—

"I take brewery or distilling barm and purify it with pure or "clean lime water, or with pure spring water, stir it well together "and leave it until settled. I then draw off the water, and add "to ninety pounds of the said brewery or distilling barm about "three-fourths of an ounce of ammonia and about one ounce "of carbonate of soda with more spring water, and let it stand "for about twelve hours. I then drain off the water as clear as "possible, and put it in an hydraulic screw or other press, and "subject it to pressure until it is dry. I then put it in a bag or "other convenient covering to be kept in as cool a place as "possible until used."

[Printed, 4*d*. No Drawings.]

A.D. 1856, October 1.—N° 2293.

DAUGLISH, John.—"Making bread."

"Heretofore, in the manufacture of bread, the dough has some- "times been made by mixing flour in a closed vessel with water

" charged with carbonic acid gas. Now this invention consists " in compressing the air in the vessel in which the flour is con- " tained before admitting the water charged with gas," so as to prevent the escape of the gas before the kneading is finished. This is effected by suitable pumps. The apparatus consists of a " strong spherical vessel" mounted on trunnions. "Through " this vessel a shaft passes, on which a ring is mounted, corresponding in size with the sphere, and also a series of "knives."

The flour, etc. is introduced through a door, air is then forced in, and the aërated water (prepared in any usual way) is admitted. To mix the materials, the vessel is made to revolve in one direction, and the "axis carrying the ring and knives" in the other.

[Printed, 1*s*. Drawings.]

A.D. 1856, October 17.—N° 2422.

GREEN, John.—"Cooking apparatus."

A "semicircular screen of tin or other suitable material with " continued flat sides," is used before the fire. At the bottom is an opening covered by a perforated lid and having a pan placed below it. Above is another pan for allowing the gravy to drip upon the meat. The discharge from this upper pan may be regulated by a screw or slides. The top of the screen is fixed, and slopes backward. A "jibbet or gallows" is fixed at the back and projects over the top to support a jack. The chain from this jack passes through a hole in the top. Behind is a door. There are moveable shelves.

A moveable oven is made with one side open to go next the fire. The opposite side has a door. This door may be opened, and the oven fixed on to the screen to conduct the heat to the meat. When the door is closed the oven may be used separately. It has shelves, and a door at the side. "A new construction of " power in the bottle jack" is employed, "which power is worked " by a spiral or flat spring of steel, or other metal, or a spring " composed of india-rubber."

[Printed, 4*d*. No Drawings.]

A.D. 1856, October 21.—N° 2472. (* *)

ATKINSON, Robert Davison.—(*A communication.*)—(*Provisional protection only.*)—" Improvements in preparing and coating " metallic surfaces."

The invention "has reference to an improved method of pre-"paring and coating metallic surfaces, such as iron and lead, so "as to preserve them from oxidation, and enable them to be "employed as substitutes for the more expensive metals, as "at present in use for various purposes," such as coppering boilers, pans, etc. It consists, "firstly, in depositing copper or "brass upon surfaces of iron previously prepared, by being "melted in conjunction with carbonic acid gas, and either coat-"ing or covering them with a brush or through the medium of "galvanic agency;" and, secondly, in employing sulphate or sulphuret of lead as a coating, to preserve the surfaces of lead from atmospheric and other influences.

[Printed, 4*d*. No Drawings.]

A.D. 1856, October 29.—N° 2548.

WHITTEMORE, DAVID H.—"Machine for paring, slicing, "and coring fruit and vegetables."

The fruit, etc. to be treated is held by a fork at the end of a shaft. This shaft is rotated by a crank handle. On it is a spiral groove, in which fits a traveller, so that the shaft is pressed forward as it rotates. The fruit is thus pressed against a knife, mounted on a spring, so as to yield slightly, and follow the outline of the fruit. It is thus pealed. A second knife is mounted so that it cuts the fruit into "spiral circles" while a projecting blade at the end of this knife cuts out the core.

[Printed, 6*d*. Drawing.]

A.D. 1856, November 17.—N° 2713.

EECKMAN, ALEXANDRE MARIE JOSEPH. — "Mechanical "bakery and cookery."

An oven and a kneading apparatus are described.

The oven is made of sheet iron lined with fire-bricks. A vertical shaft passes through the centre and carries several shelves. At one side of the oven is a series of doors, one for each shelf, and by means of a handle on the top of the shaft, the shelves may be turned round, so as to bring any article on any of them opposite the door. There is a fire on each side and the flues lead between each pair of shelves, and up to a chimney at the top.

The kneading apparatus consists of a semi-cylindrical iron box with spherical ends, which stands in a tub for containing warm water. This tub again is placed in "a wooden chest to which "the kneading apparatus is fixed." The kneader is "an iron "blade" "shaped like an S with hooked fingers." This is mounted in bearings and revolved by a toothed wheel on its centre which gears with another wheel driven by a handle outside. This may be made moveable for convenience of emptying the box, or the box may be tilted. The entire apparatus is available for use on board ship or for troops.

[Printed, 8*d*. Drawings.]

A.D. 1856, November 21.—N° 2759.

LUDEWIG, Frédéric.—"Leaven."

The leaven is called "white sweet and dry leaven." "Flour "of germinated barley," "flour of germinated white beans," and "potato starch," sixty-six pounds of each, are mixed together into a thin paste with water at 122° Fahr. Fifty pounds of white leaven, "the produce of a previous operation," are then added, this also having been diluted in tepid water, sufficient water is added to reduce the whole to a very clear paste," and it is allowed to cool. When the paste reaches the temperature of 117° Fahr., six pounds of gelatine softened in water are added and worked up with the paste. Some "exhausted wort," not more than twenty-four hours old, is added to cool the mixture to 77°. Eighty-seven pints of the paste are then mixed with eight pounds of sweet leaven "obtained from a previous operation." This leaven is mixed with "several pints of tepid water." The mass then ferments and when the fermentation has reached its highest point, the remaining paste is added. When the fresh fermentation thus produced is over, the process is finished and the leaven ready for use.

[Printed, 4*d*. No Drawings.]

A.D. 1856, November 28.—N° 2818.

SAUNDERS, Joseph M.—"Cooking ranges."

The range resembles an ordinary "close fire cooking apparatus." The fire is contained in a "fire pot" which has apertures at the sides and bottom to admit air. The top of the fire pot is formed by the hot-plate. In the upper part of the sides of the fire pot are holes; through these the smoke, etc. passes, and as this part gets red hot, the smoke is consumed. Air is admitted by an opening into a space formed below the fire. On one side of the fire is an oven which may be made into a roasting chamber by the withdrawal of the partition between it and the fire. On the other side of the fire is the boiler, round which the flue passes. The whole is contained in a square iron casing of the usual form. If preferred, there may be an opening in front of the fire, at which roasting can be performed.

[Printed, 8*d*. Drawing.]

A.D. 1856, December 9.—Nº 2915.

VICARS, Thomas, senior, VICARS, Thomas, junior, ASHMORE, Thomas, and SMITH, James.—"Manufacture of "biscuits, lozenges, and other like articles."

A machine for shaping and delivering dough is described. It consists "of framework carrying rollers, over which endless webs "or bands of moleskin, or other suitable materials, are stretched, "and between which the prepared paste or dough is pressed by "the action of a roller on each side to produce any required "thickness, whence it is carried on the same endless web on "which it is rolled to a set of cutters or dies to shape and "impress it, after which the web delivers the articles produced "on to trays carried by another web. A lesser web is arranged "to remove the the scrap or waste material of the confectionery. "The webs are kept dredged with flour or floury material equally "distributed by cylindrical brushes. The webs have a simultaneous motion produced by a roller and a ratchet actuated by a "crank. The webs are at rest during half the stroke of the "crank while the cutters or dies are shaping and impressing."

[Printed, 6*d*. Drawing.]

A.D. 1856, December 15.—Nº 2970. (* *)

GRANT, John.—(*Provisional protection only.*) — "Heating or "cooking by gas."

The apparatus consists "of a chamber into which a hot-air pipe," "enters at the lower part thereof, and from which an aperture in "the top thereof communicates with a flue. The chamber is "provided with a door at front. Round the sides, back, and top "is a hollow space or flue, which opens into a flue leading to a "chimney or shaft; the before-mentioned aperture in the top of "the chamber opens into this last-named flue. Outside of the

" hollow space or flue is a lining or casing of non-conducting " material for preventing, as far as possible, loss of heat from " radiation; or, instead of a lining or casing, a water space forming a boiler may be used. Round the bottom plate, and at the " back and two sides of the chamber, near the hollow spaces " before named, is a perforated gas pipe or burner."

In order to ventilate the interior of the chamber, a pipe, open at one end to the atmosphere and at the other to the interior of the chamber, is carried under and across its bottom, and the air in the pipe is heated by gas jets from a burner carried under it.

[Printed, 4*d*. No Drawings.]

A.D. 1856, December 24.—N° 3056.

MARESCHAL, JULES HENRI ETIENNE.—" Hydraulic presses."

These presses may be used for making sausages and " macaroni " or other pastes." A piston works water-tight in a cylinder the top of which can be removed for the supply of the matters to be acted upon. Near the upper part are suitable discharge openings which may be fitted with tubes for sausage making. Water is driven by a force pump under the piston which is thereby caused to expel the matters in the cylinder through the discharge orifices. An air-pump may be fitted to the upper part of the cylinder.

In a modification the water acts on a separate piston, which is connected with the pison of the forcing cylinder by a rod. Another machine may be employed " for domestic purposes " as " a collander or sieve." A hollow vessel has fitted with it in a flexible bag. Water can be forced into this bag from a force pump so as to cause it to fill the vessel. The vessel is perforated so that any matters within it are driven through the holes and received in an outer jacket whence they pass away by a pipe. The vessel has an opening at the top by which it may be filled.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1856, December 31.—N° 3101. (* *)

MADDEN, PETER.—(*Provisional protection only*.)—" Furnaces " or fire-places."

The inventor places " either metallic plates or metallic tubes, " or both conjointly, in contiguity or near the fire " in furnaces or fire-places " in such positions as that these metallic plates or

" tubes shall be subject to the free action of the fire upon them, " and so that the heat and other products of combustion shall " pass over or between the said plates, or through said tubes, " as the case may be, in their progress to their kiln, roasting " place, or boiler, where such process either of drying or roasting " of substances or heating of boilers is being carried on or " effected."

[Printed, 4*d*. No Drawings.]

1857.

A.D. 1857, January 2.—N° 18.

PETTIGREW, JOHN.—" Manufacture of bread."

The kneading vessel is a horizontally-hung metal cylinder. Through the trunnions of the cylinder a shaft passes. This shaft carries arms which have at their ends blades. These blades are set at a slight angle to the shaft, and " are slightly curved in a " helical or spiral direction." The blades at the end drive the dough towards the centre, and those at the centre drive it towards the ends. The shaft is driven from both its ends by bolts and pulleys. There is a fast and loose pulley at each end and the belts are shifted simultaneously by a rod actuated by a lever. The shaft is hollow and is connected with a steam pipe, so that it can be heated internally. The whole vessel can be turned over by means of gearing. Above is an opening, fitted with a hopper, through which the materials are introduced. When the kneading is completed, the vessel is reversed, and the dough discharged into a trough below. If fermentation has not taken place, the dough may be set aside to ferment, and then again passed through the kneading apparatus. When it is ready for baking, it is discharged from the kneading vessel into a trough with sloping sides leading down to an opening. It passes through this opening and between rollers, and thence on to a cylinder fitted with partitions. Into these the dough is received, and it is pressed in by a presser driven by a spring. As this cylinder revolves it discharges the dough in " segmentally-shaped " pieces " on to a table when they are shaped up by hand. They are then ready for the oven.

[Printed, 1*s*. Drawing.]

A.D. 1857, January 2.—N° 19.

JOHNSON, John Henry.—(*A communication from Perrin de Musigny.*)—(*Provisional protection only.*)—" Apparatus for roast-" ing meat."

" This invention consists in constructing apparatus for roasting " meat in such a manner that the rotatory motion of the spit " will impart a reciprocating movement to a basting ladle." Various mechanical contrivances may be employed for transmitting the motion from the spit to the ladle. " A disc may be " fixed on the spit and furnished with a number of radiating " pins or arms projecting out from its periphery, which arms, as " the spit revolves, press successively against a cam on a short " rocking shaft, to which is fixed the handle of the basting ladle. " As the cam is depressed the ladle is raised from the dripping-" pan (which may be furnished with a well for collecting the " dripping), and carries with it a certain quantity of dripping, " which on arriving at the top of its course it empties into a " perforated receptacle placed immediately over the spit, and " consequently the dripping is allowed to descend in the form of " a shower on to the roasting meat. The tipping over of the " ladle may be effected by connecting it by a short lever to the " main handle, and when the tail of this lever strikes a stop pin " it instantly tips over the ladle. In order to prevent the sudden " descent of the ladle, the cam is of a suitable shape, and the " arms are sufficiently near together to allow of one arm just " coming into action before the preceding one has quite left the " cam."

Self-acting basting apparatus may be applied to " all kinds of " roasting apparatus where spits are employed," and a horizontal spit with a similar apparatus may be fitted to small roasting apparatus, such as Dutch ovens.

[Printed, 4*d*. No Drawings.]

A.D. 1857, January 26.—N° 224. (* *)

FORTESCUE, John.—" Furnaces of bakers' ovens for the pur-" pose of consuming smoke."

" The furnace is provided with outer and inner doors, and is " furnished at the top, at the end next the oven, with a block " or inverted bridge extending downwards across the furnace; " over the inner door is an opening extending across the furnace,

" and the outer door is provided with a projecting block, which " when the outer door is closed fits into the said opening and " renders the same air tight, or nearly so." When fresh fuel is introduced, the outer door is left open, and air enters through this opening.

[Printed, 6*d*. Drawing.]

A.D. 1857, January 26.—N° 226.

HENSEL, Adolphe.—(*Provisional protection only.*)—" Manu- " facture of German yeast."

The Specification is as follows :—

"In order to obtain ten pound weight of my German yeast " from flour, I take 2½ lbs. of the flour of malted wheat, the " same quantity of flour of malted barley, and the same quantity " of rye flour. To this mixture some water is added of a tem- " perature of 30 degrees Réanmur, and the mass is stirred until " it forms a thin paste. This paste is then brought to a tempera- " ture of 45 degrees Réanmur, by means of adding to it hot " water. The mass is afterwards cooled down to 30 degrees " Réanmur; then I add 2½ lbs. of wheat starch previously dis- " solved in cold water; now 5 ounces of double carbonate of " soda, and 2½ ounces of tartaric acid, severally dissolved in " lukewarm water are added to it, together with 1¼ lbs. of common " yeast. The mass will now, dependently from the temperature " of the atmosphere, require the adding of hot or cold water, so " as to have 27 degrees Réanmur of warmth, after which the mass " for a space of 12 hours is left to ferment. After this time this " paste is to be passed through a hair sieve, when in the lapse of " 8 or ten hours the yeast forms itself on the bottom of the cask. " This yeast after being freed from the covering water, is put into " double bags which are submitted to a pressure, so as to free it " entirely of water or moisture, and the yeast is then ready for " use."

[Printed, 4*d*. No Drawings.]

A.D. 1857, January 31.—N° 286.

HENSEL, Adolph.—(*Provisional protection only.*) —" Making " compressed yeast."

The entire specification is as follows :—

"To a distillation of malt and hops I add natron carbonicum " and Russian potassium together or separate; the whole of

" which undergoes a system of compression. I therefore claim
" the use of natron carbonicum and Russian potassium as my
" invention in the production of yeast."

[Printed, 4*d*. No Drawings.]

A.D. 1857, February 17.—N° 456. (* *)

BALL, Thomas.—" Portable oven."

"It consists of a plain cylindrical case of iron (attached to a
" perforated foot) with a lid or cover for the same, which may be
" removed at pleasure. Within this cylinder are two cones of
" different diameters, the larger one resting upon its base, the
" smaller one inverted and firmly attached to the larger by means
" of a screw, which passes through the apex of each cone."

The fire is placed at the bottom of the lower cone, which is so formed that the fuel forms an annular fire round the lower edge, apertures being made at that part to admit air. On the top of the upper cone rests "a saucer" covered by a lid, under which the articles to be baked are placed.

[Printed, 6*d*. Drawing.]

A.D. 1857, February 18.—N° 476.

BLANC, Julien.—(*A communication from Pierre Hanns and Louis Girard.*)—" Making bread and biscuits."

"In order to obtain gluten, flour is first made into dough, as
" heretofore, and the starch is to be washed out therefrom in like
" manner to that to that heretofore practised, and in place of
" simply mixing the gluten thus obtained with dough or with
" flour, as has heretofore been practised, the wash water contain-
" ing the starch is to be allowed to settle for about twelve hours,
" by which the starch will be deposited. The liquor is to run
" off from such starch into another vessel, where it is to be
" allowed again to settle, and the sediment thus obtained is to be
" drained, then pressed free from fluid, and then dried in any
" convenient manner. In place of subjecting the matters which
" settle in the second vessel to pressure to separate the liquor
" therefrom, the fluid may be separated by pouring or spreading
" such sediment whilst still in a semi-fluid state on a moving
" filtering cloth, and the filtration will be quickened by giving to
" the moving filtering cloth a shaking or quick tremulous motion.
" The sediment will thus be more readily obtained separated

" from the fluid, and such sediment is then to be dried in any " convenient manner. The dry product thus obtained is to be " mixed with the gluten, and the gluten thus combined is then " to be mixed with dough or with flour, and used in the manu- " facture of paste or dough in the ordinary manner, which is to " be used in making of bread, biscuits, and other preparations " for food."

[Printed, 4*d*. No Drawings.]

A.D. 1857, February 21.—Nº 513.

TURNER, JOHN.—" Manufacturing bread."

The patentee states :—

"My invention consists, firstly, of a mixture of flour made from " Indian corn and wheaten flour in the proportion of one part of " Indian corn flour to six parts of wheaten flour, or thereabouts ; " and, secondly, in the manner of treating the same during " fermentation, which I accomplish as follows :—I take, say, " forty pounds of Indian corn flour, which I scald and mix with " boiling water ; I allow this to cool, and then add the usual " quantity of yeast, with or without potatoes, and leave this to " ferment about six hours, after which I add about two hundred " and forty pounds of wheaten flour, and work the whole to a " proper consistency for the oven. The advantages of my process " are, that I accomplish by one fermentation same results, which " by the ordinary method requires twice fermenting."

[Printed, 4*d*. No Drawings.]

A.D. 1857, February 26.—Nº 567.

EDWARDS, JOSEPH SLATTERIE.—Preparing carob pods for food, etc.

Carob pods (pods of the *ceratonia siliqua*) are dried and ground to meal. The meal is sifted, mixed or not with some of the syrup extracted as hereafter described, and further reduced to a fine powder. This powder is made up into cakes " to be used as chocolate or " various articles of confectionery." To obtain the syrup the pods are ground, sifted or not, and the meal mixed up with water, either hot or cold, into a compost. The juice is pressed out in bags, evaporated (preferably in a vacuum pan), and a syrup obtained " which may be subsequently crystallized." Processes for making gum, procuring food for cattle, and brewing, are also described.

[Printed, 4*d*. No Drawings.]

A.D. 1857, March 11.—Nº 708.

HUMFRYS, John Robert Reid.—(*Provisional protection only.*)—" Apparatus for burning gas."

The gas burners may be applied, amongst other purposes, for cooking. In one improvement a current of air is directed " to " that point from which the gas issues." Concentrically round an argand burner, a conical chamber or a series of pipes is arranged, communicating with the atmosphere. Streams of air rush through these upon the gas flame. Or a horizontal pipe perforated with holes may be used with or without a surface of wire gauze over it. " Parallel with this pipe and on each side " thereof " is placed " a sheet of metal at an angle, so as to form a " section similar to the vertical section of a cone." By this the air is directed upon the flame of gas.

The second part of the invention " consists in the use of " curved plates or other apparatus for imparting one or more " angular directions to gas and air before they issue from the " burning orifice or orifices, whereby the liability to combustion " below the proper level is obviated."

In the third part, gas and air are made " to pass from contiguous passages so as to be delivered into an outer chamber, " constituting a reservoir, which may be supplied with wire gauze " or other apparatus constituting burners." There is also applied " above such passages " a " surface interfering with the direct " issue of the air and gas " to facilitate diffusion.

[Printed, 4*d*. No Drawings.]

A.D. 1857, March 12.—Nº 711.

DERRIEY, Joseph Jules. — " Machines for manufacturing " lozenges, wafers, or pastiles of pasty materials."

The paste is delivered between three pairs of rollers, by which it is rolled. Over each pair of rollers is a gauze-bottomed box containing flour, etc. by which the rollers are dusted; these boxes receive a " jogging " motion which distributes the flour, etc. The paste next comes to the cutting and stamping apparatus. A cylinder has a slit along its length, in which are fitted guides and pistons. The pistons are in pairs, abutting against each other, and driven outwards towards the sides of the slit by springs. To each set of pistons is fixed a cross bar. Vertically-moving cutters are fixed above the cylinder, so as to work downwards into the slit which is presented upwards to them, the pistons being retracted by a catch taking on the ends of the cross bar. When the cylinder has received the lozenges, it makes half a revolution, the cross bar escapes from the catch which held it down, the pistons are driven outwards, and the lozenges expelled on a board placed below to receive them. As each row of lozenges is deposited, the board moves forward in readiness to receive another row.

Another machine is also described with a cylinder similar to the last, but arranged to act horizontally instead of vertically. The paste is not rolled, but is delivered from a box through a funnel direct to the space above the piston. The paste is pressed forward by a screw. When the space over the piston is filled with paste, a knife separates the lozenges. The cylinder revolves carrying the lozenge upwards against a roller supplied with flour, etc., then against a stamper which is pressed against it, and after that the lozenge is expelled downwards as in the former machine. Small rollers are fitted in furrows in the cylinder, which receive flour from the dusting roller, and convey it to the end of the portion of paste presented through the funnel. After each cut the box of paste is slightly withdrawn.

[Printed, 1*s*. Drawing.]

A.D. 1857, March 13.—N° 721.

TAYLOR, SAMUEL LAWRENCE, and ROLFE, THOMAS EATON.—Steam boilers, etc.

One part of the improvement relates to "coppers," kettles, and "vessels used for boiling water for culinary and other domestic "purposes." Such vessels are made with a hollow space in the bottom, across which are fixed pipes communicating with the interior of the vessel. The liquid in the vessel passes into these pipes, and becomes rapidly heated. From the hollow space one or more passages lead through the vessel to its back, and convey smoke, etc. away.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1857, March 13.—N° 722.

NEVINS, William Ramsey, and YATES, Joseph John.—Manufacture of bread and biscuits.

The first part of the invention relates to a machine for cutting out biscuits. "The dough is placed upon a table or apron in " front of a pair of rollers, which can be regulated so as to roll " the dough in the various thicknesses necessary to produce " bread or biscuits. After coming through the rollers the dough " is received upon an endless web, and carried forward until " it reaches that part of the machine where the cutters are " placed. These cutters are held by a band to eccentrics upon a " shaft to which motion is communicated from the driving shaft " through toothed gear, and by shifting this gear the velocity of " the cutter shaft, and consequently of the cutters, can be " regulated at pleasure. The cutters extend across the machine, " and bring up the waste or parts of dough not required to " form the article being made, while the articles to be formed, " after being cut or stamped out by the cutters, are pushed " down on the rising of the cutters through them on to the " endless web, from whence they can be taken to the oven to be " baked. There is but one driving shaft, and the toothed gear " for dividing the dough rollers is so regulated as to cause a " continuous and regular feed to the cutters."

The second part of the invention refers to an oven, in which trays are hung from arms on a horizontal shaft so that the trays are carried round as the shaft revolves, but are always kept in a horizontal position.

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1857, March 17.—N° 755.

FORSYTH, George.—" Steam cooking apparatus."

The apparatus is intended "to be used for preparing food for " cattle, horses, and other animals." An outer vessel or boiler has within it a smaller vessel of similar shape. The two are joined steam-tight by a flange at top, but below there is a considerable space for water. The whole is fixed over a furnace. Pipes convey steam from the top of the outer vessel to the bottom of the lower vessel, where it is discharged amongst the roots, etc. to be boiled. A supply pipe leads from a tank to the bottom of the boiler. The tank must be high enough for the pressure of the water to counteract that of the steam. A safety valve is fitted to the boiler.

One of the claims is for the "mode of cooking roots and other "matters by means of a steaming apparatus."

[Printed, 6*d*. Drawing.]

A.D. 1857, March 20.—N° 778.

MAIRE, Joseph François.—"Cooking apparatus."

The food is partly cooked in a "vessel of the digester kind." When a heat of 121° Cent. is attained, the vessel is removed from the fire, and placed in a receptacle formed with double sides, bottom, and lid, and having the space thus provided filled with any non-conducting material, such as sawdust, wool, etc. The cooking continues within this till completed. This receptacle is preferably of cardboard, but it may have an outer case of wood or metal for travelling.

[Printed, 6*d*. Drawing.]

A.D. 1857, April 16.—N° 1075. (* *)

CROOK, Samuel Thomas.—(*Provisional protection only.*)—Manufacture of ovens, retorts, safes, boilers, etc.

The entire specification runs thus:—

"Instead of the usual methods of making or manufacturing "retorts, safes, &c. by casting them of molten metal in moulds, "or making them of wrought or malleable metal, by rivetting or "dovetailing the sheets or plates together, I propose to weld "sheets or plates of wrought or malleable iron together to the "required shape, size, or configuration suitable for retorts, safes, "or similar purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1857, May 7.—N° 1298.

CRAWFORD, John.—(*Provisional protection only.*)—"Heating "and cooking apparatus."

"This invention relates to heating and cooking apparatus of the "portable kitchen range class, combining an oven, open or closed "fire-place, boiler, hot press, or chamber, and a hot plate or table "with openings for the admission of detached cooking vessels. "The entire apparatus is independant and self-contained, is of "an oblong rectangular form, and is carried upon a set of four

" pillar legs." "The fire-place is in or near the centre of the " apparatus. The bars are disposed vertically down the front, " and they are carried by a bend to form the bottom of the grate. " The door is fitted with a gridiron slide valve for the adjustment " of the cold air supply to the fire. Above the door is a swinging " or vibrating hopper, which, by being drawn forward, affords " access to the fire for the supply of coals, or stirring the fuel " without opening the main door. The hot plate extends along " the entire length of the range; in it, at the part directly over " the fire, there is a moveable cover which can be removed at " pleasure to make an open fire, but so long as this plate is down, " the fire is quite closed in like a stove fire. This cover has in it " a smaller moveable cover, which, when removed, affords admis- " sion for a detached cooking vessel. The parts of the range to " the left side of the fire-place is formed as an oven, and the " heated current from the fire-place circulates all round it, and " passes off beneath it and beneath the fire-place; thence the " current passes beneath the boiler which is next to the fire-place " on the right, and from this part it ascends, passes over the top " of the hot chamber, and reaches the flue or chimney. The " fire-place has attached to it a moveable ash pan or tray, into " which the ashes can be raked as required. Over the oven there " is in the hot plate a triple-covered plate, so contrived that " when the two end circular pieces only are taken out, two " cylindrical cooking vessels can be inserted, and when the " central piece also is taken out, a fish kettle or other oval vessel " can be put in. Other covers are also disposed in the hot plate " for various purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1857, May 23.—N° 1456. (* *)

TRAVIS, EDWIN, and CASARTELLI, JOSEPH LOUIS.—" Apparatus " for regulating the supply and discharge of steam, air, " water, and other fluids."

This consists of a " box of brass or other suitable anticorosive " metal or material, with a slide tube at one end, an adjusting " plug, piston, or valve at the other, and an escape tap or hole " at the side ; " it is named a " steam trap." This apparatus is fixed " to the end of an additional pipe, which is attached to " the ordinary steam pipe or other vessel on which it is intended

" to act, forming one continuous tube." This additional pipe has " a compensating arrangement with itself by bend, coil, disc, or " other similar agency, to act when the pressure of the steam " exceeds the point at which the apparatus was adjusted." Or there is "a compensating arrangement with the apparatus, by " spring or other mechanical contrivance." The apparatus is also made "with a swivel or universal centre to enable it to " accommodate itself to any vibration or divergence of the con- " nexion to the sliding tube," or it is screwed " to a wall or other " convenient place, so that when the steam is first raised, it will " force the air or fluid through the ordinary pipe into the addi- " tional pipe, which will then escape through the escape tap or " hole. As soon as the steam begins to escape through the said " hole or tap, and the additional pipe becomes heated by the " steam and expanded," "the plug, piston, or valve," is adjusted " so as to stop the escape of steam, and when it cools the con- " traction of the metal pipe will draw the sliding tube from the " piston, plug, or valve, and cause it to open, thus allowing " any condensed steam or water to escape, or it may be applied " directly to any range of piping," and the additional pipe dispensed with. The inventors "also chamber the inside of the " trap to allow the free discharge of the air or fluid from the " tube and outlet, and to an adjusting piston, plug, or valve," they "apply a spring, if found necessary for the purpose of com- " pensating for any additional expansion after it has been " adjusted;" the "trap or apparatus" is made "in such manner " that by transposing the sliding tube and the plug, piston, or " valve it may be used for right hand or left hand." This apparatus is said to be applicable to a number of purposes, among which cooking is mentioned.

[Printed, 1*s*. Drawings.]

A.D. 1857, May 27.—N° 1495.

WELCH, Edward.—" Fire-places and flues."

Various improvements are described, of which the following relate to this series; they are thus described :—

" *First*. An improved kitchen range, that combines a cooking " range and a stove for warming cold air for the use of adjoining " apartments."

" I enclose the *fire*, the boiler and the oven in a metal case or " box which becomes heated from the fire and flues within it, and

" I fix an iron chimney or pipe on its top communicating with " the brick flue. I place the whole apparatus so constructed in an " air chamber formed in the chimney breast." " I then admit the " cold air into the bottom of the chamber, and warm it by passing " it over the apparatus, and then convey it into adjoining or " upper rooms."

" *Third.* A new cottage fire-place or grate and portable ovens."

" The grate is formed of a cylindrical or square box, the outer " case of which forms the boiler, and is to stand on the hearth " without brickwork, so as to give out warmth all round it."

" I form an oven out of an ordinary iron pot, to place over the " fire by fixing to such pot a rim pierced with holes round the " top, and bending downwards all round the pot " " to keep the " heat of the fire against the sides of the pot when placed over " the fire." " I form another oven of iron, or tin, or earthen- " ware, to place before the fire," " and I enclose the front next " the fire with a sheet of thin iron," " and I cover the parts of " the oven not exposed to the fire with felt or other non-conduct- " ing substances."

The Provisional Specification also describes a register stove fixed within a chamber like that described in the first head. There may be " an oven under the fire and a boiler against its cheeks." In the description of this stove in the final specification, no allusion is made to the oven and boiler, nor are they figured in the drawing.

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1857, May 27.—N° 1508.

GRIFFITHS, Edward Paige.—" Apparatus for beating the " whites of eggs."

" This invention has for its object improvements in apparatus " for beating the whites of eggs, and other fluids and matters. " For these purposes a suitable frame is constructed to fix on the " upper part of a saucepan or other vessel, in such manner as to " be readily removed when the beating of the contents of the " vessel has been accomplished. This frame carries an axis with " a crank handle to enable the user to give a quick rotatory motion " to the axis. The axis gives motion by suitable gearing to two " frames, which are caused to rotate within the vessel in opposite " directions, the frames are furnished with projections which are

" interspaced, so that in their rotation in opposite directions the
" projections of one frame pass between the projections of the
" other frame. The forms of the frames and the manner of
" giving motion thereto may be varied, so long as they are formed
" with projections, and the projections of the different frames are
" arranged to pass each other."

[Printed, 10*d*. Drawings.]

A.D. 1857, June 29.—Nº 1820.

GILBEE, HENRY.—(*A communication.*)—"Machinery for mould-" ing vermicelli."

A cylinder is fitted with a hopper by which paste may be fed into it. On the opposite side is an aperture fitted with a perforated mould. Eccentrically mounted within this cylinder is a second cylinder, fitted with two pistons at right angles to each other, which slide in slots in it. By these pistons the paste as it falls from the hopper is driven round the interior of the outer cylinder and through the mould.

[Printed, 6*d*. Drawing.]

A.D. 1857, June 30.—Nº 1828.

ALSOP, JOSEPH, and FAIRBURN, EDWARD.—"Machinery " for the manufacture of bread, biscuits, and cakes."

Improvements upon No. 2056, A.D. 1853. Four iron rollers are placed against the baking cylinder, to support the bread while baking. The bread after baking is received on friction rollers, instead of an endless web. A roller with knives is used to cut the bread. It works against another roller. The bread after being cut, is received on an endless "creeper" or web, and carried through a drying stove, 60 ft. long, 33 in. wide, and 18 in. deep. A second web works over the bread to hold it down. These "creepers" are made of "woven wire" with transverse rods of iron. To the ends of these rods is fixed a flat chain.

[Printed, 4*d*. No Drawings.]

A.D. 1857, July 10.—Nº 1918.

VICARS, THOMAS, senior, VICARS, THOMAS, junior, ASHMORE, THOMAS, and SMITH, JAMES. — "Manufacture of " bread, biscuits, and like articles."

The crust is made of separate dough, more fermented than the rest, and wrapped round the "inner dough." It may be made "short" by adding butter or lard.

Machinery for preparing the dough is also described. It "comprises a mixing machine, consisting of a portion of a cylindrical "vessel or trough, having a central shaft working within it, on "which are fastened a number of radial arms or knives. A shelf "or table, having a number of slots in it, projects into the drum or "trough, the knives revolving through the slots. The thoroughly "mixed dough is deposited in a moveable trough placed below, "by turning the cylindrical trough on its bearings, by means of a "hand wheel, to such a position that a revolution of the knives "discharge the contents. There is a second hand wheel, with "its gearing, for the purpose of raising the slotted table or shelf "to any desired elevation.

"To the ordinary break rollers used by biscuit bakers we attach an endless web, which passes between the rollers, carrying "the dough along with it, its lower side being in contact with "flour to dust it and prevent adhesion.

The "improved rolling and shaping machine is required after "the dough has been properly prepared by the break rollers. The "bottom crust dough is pressed between rollers separate from the "rollers which press the top crust, and the body or soft dough is "placed in a hopper between them, and passes between and along "with the dough forming the crust on to an endless web beneath, "on which it is shaped as required by dies attached to a cross-"head, which may be actuated by fell cranks on the spindle "beneath, worked by an eccentric. The rollers are moved by a "suitable crank, acting also on the levers and ratchets, keyed on "the spindles of the rollers. The motion is intermittent, that is, "during one half of the stroke of the crank; whilst the dies are "shaping and cutting, the rollers are at rest, and vice versa. Or "the cutting machinery may be in accordance with the improve-"ments patented by us, and bearing date the 9th day of December "1856." (No. 2915.)

[Printed, 10*d*. Drawing.]

A.D. 1857, July 20.—N° 2002.

NEWTON, William Edward.—(*A communication.*)—"Machinery for feeding flour and mixing and kneading dough."

Flour is fed into a receiver shaped like the section of an inverted cone. Its bottom is closed by a disc which rotates on a vertical shaft. In this disc is a radial slot, and over the slot is fitted a scraper which shaves off a layer of flour so that it falls through the slot on to an inclined board fixed to the shaft and revolving with it. Thence it falls into a circular mixing trough from the centre of which the shaft rises. Below this inclined board is a channel connected with a cup fitted about the shaft. This cup is supplied with water by a pump, and the water is thus discharged with the flour into the trough. "Sponge" is supplied from a hopper at the edge of the trough. At the bottom of the hopper is a wheel with four wings forming compartments. As it revolves, these compartments receive the dough and deliver it into the trough. The mixing apparatus consists of two horizontal arms attached to the central shaft, and carrying vertical blades set at such an angle as to drive the dough towards the centre of the trough, where there is an aperture for its discharge. Rows of pins are set in the bottom of the trough, in such positions as to allow the revolving blades to pass between them. The whole machine is driven by suitable gearing.

[Printed, 1*s*. Drawing.]

A.D. 1857, August 5.—N° 2116.

BOTTURI, SEBASTIEN.—"Apparatus and oven for the carboni-"zation and distillation of all animal and vegetable matters."

The apparatus is intended for the extraction of gaseous and liquid products from various matters by treating them in an oven. It is stated that this oven may be used for baking bread. The oven is constructed of bricks united with clay. The interior of the oven is covered with roman cement. It has a safety valve. "The flame pipes are constructed in such manner that when the "flame and smoke has passed through the base of the oven under "the platform, they divide and penetrate into the two chimneys "which are on the right and left sides of the oven; after having "passed through each side of the two chimneys, of which the "first" "conveys it to the front of the oven, and the second" "to the back, then the flame is reunited to be divided again to "the right and left" by flues at the sides of the oven, and carried by them to the chimney. No other part of the invention appears applicable to this series.

[Printed, 1*s*. Drawings.]

A.D. 1857, August 15.—N° 2174.

BOUSFIELD, George Tomlinson.—(*A communication from James Perry and Elisha Fitzgerald.*)—"Preparation of dough."

A cylindrical vessel, closed at bottom, has a moveable lid, which may be fastened down gas-tight by screws or otherwise. A shaft revolves through the centre of the vessel, and is fitted with arms shaped so as to drive the dough downwards. Similar fixed arms project from the sides of the vessel between the revolving arms. In this vessel the flour and water is placed. A cock at the bottom admits carbonic acid gas from a generator, and there is a cock at the top by which air may be exhausted. At the bottom is also a cock or valve through which the dough is forced out by the pressure of the gas. As it passes out, it is cut into suitable portions and carried to the oven.

[Printed, 8*d*. Drawing.]

A.D. 1857, August 21.—N° 2224.

DAUGLISH, John.—"Preparation of dough."

The mixing vessel is spherical, and has a set of revolving arms fixed on a central shaft. This shaft may be annular. The vessel is connected by pipes and stop-cocks with a water vessel above it, a set of force pumps and a gas-holder. Flour having been placed in it, a man-hole at top is opened, and carbonic acid gas is allowed to flow in from the gas-holder. By this means the air, etc. is expelled. The man-hole is then closed, and the force-pumps caused to drive gas into the water vessel, which is in communication at top with the mixing vessel. The gas rises through the water to the top and then down to the mixing vessel. When a sufficient pressure has been obtained, the supply of gas is stopped. The cock at the bottom of the water vessel is opened, and water allowed to pass into the mixing vessel. The kneading arms are then set to work and the dough completed. When it is finished, the gas is allowed to pass back to the gas-holder, and the dough taken to the oven. There may be several variations in the process. Flour and water may be put together in the mixing vessel, and gas then admitted. Or the water may be forced in through a rose after the gas has been admitted.

Reference is made to a former patent by the inventor (No. 2293, A.D. 1856).

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1857, August 25.—N° 2247.

NICHOLLS, William.—(*Provisional protection only.*)—"Appa-"ratus for warming milk."

"This invention consists of a portable vessel into which hot "water is placed, the temperature of such water being main-"tained by placing heaters within said vessel after the manner of "an ordinary tea-urn, said heaters forming an important feature "in this invention.

"This apparatus, when used for warming milk, is placed in the "vessel containing the milk, and a thermometer is held therein "to ascertain when it has been sufficiently warmed, after which "the apparatus is lifted out of the milk.

"By the above improved apparatus the heaters serve to keep up "the temperature of the hot water as the cold milk robs it of its "caloric."

[Printed, 4*d.* No Drawings.]

A.D. 1857, Augnst 26.—N° 2260.

NEWTON, Alfred Vincent.—(*A communication.*)—"Ma-"chinery for kneading dough."

The invention chiefly consists in the use of a "flopper" or "swinging blade attached to a wheel or carrier that rotates "within a barrel." The mixing vessel is a cylinder with its axis horizontal, and two equal discs rotate opposite each other at the ends of the cylinder with their centres opposite. These discs carry a bar which mixes the dough, a scraper which clears the sides of the trough, and a shaft to which the "flopper" is hinged. This flopper is a flat board, swinging freely on its shaft, but having the extent of its swing regulated within a right angle by two pins. As it is carried round, it meets the dough at the bottom of the vessel, lifts it to the top, where a wiper on it strikes a fixed pin, and causes it to turn over from the pin on which it has been resting to the other, and thus drop the dough to the bottom again.

[Printed, 8*d.* Drawing.]

A.D. 1857, August 27.—N° 2269.

NEWTON, Alfred Vincent.—(*A communication.*)—"Bakers' "ovens."

The description given of the apparatus is very minute, and runs to considerable length. The drawing also is extremely elaborate.

The oven is heated by a furnace below, the products of combustion from which pass over bridges at each side, and traverse the entire surface of the bottom, till they reach two main horizontal flues. Small flues from these lead along the sides of the oven to similar horizontal flues at the top. Within the oven are rollers carrying endless chains from the top to the bottom. There may be three, five, or any uneven number of pairs of rollers. On each set of chains are fixed projections which support one end of a set of trays whose other ends are supported by similar projection on the opposite set of chains. The rollers are so arranged that there is a set of chains at each end and a third in the middle. The trays, therefore, on one side of the oven continually descend, those on the other continually ascend. Four doors are provided in such positions that the trays may be run in to be received by the chains, and run out after passing through the oven. On one side, of course, the trays are run in at the top and out at the bottom, on the other side the trays enter at the bottom and leave at the top. During their passage the bread upon them is baked. Opposite the two upper doors is a platform, and opposite the two lower doors is a similar platform. On each of these runs a carriage. The carriage receives from the oven a tray of baked loaves, tilts up so as to deliver them to a receptacle, and passes on to the other door. Here it is loaded by hand, the tray is pushed into the oven and carried through the oven, either upward or downward according as it is from the upper or lower platform that the delivery is made. All the movements are automatic. By suitable mechanism (described at length in the Specification) each door is raised in turn, a pair of tongs driven forward from the back of the oven and a tray seized and drawn into the oven. As the tray ascends or descends it disengages itself from the tongs, which are again driven forward to seize a fresh tray. When the tray arrives at the discharge door, it is driven out by a pusher actuated in a similar manner to the tongs. The carriages are drawn from one door to the other by chains. These chains are actuated from eccentrics, so that the carriages are allowed to remain stationary for the necessary time while loading and unloading. The top frame of each carriage is pivotted so that when a tray is run on to it it is overbalanced, and tilts up, discharging its contents. The tray is prevented running off by stops. The frame is brought level again by the action of a wheel below the carriage which runs on a sloping rail, and works a lever which presses against the lower part of the frame. The bottoms of the trays are made of tile, soapstone, or fire-clay, to avoid the radiation of metal.

[Printed, 1*s*. 2*d*. Drawing.]

A.D. 1857, September 16.—N° 2404.

BROWN, Richard.—" Moulding or shaping metals."

The invention relates to a method of making moulds for casting articles; it is applicable to culinary vessels. A " half-pattern " whose flat side represents a vertical section through the centre of the intended vessel is used.

" The operation takes place upon a horizontal metal table, upon " which is laid a thin flat plate, with a central hole cut in it, to " the sectional contour of the pattern. The pattern is fitted with " its flat side upon the horizontal table, the loose plate fitting " accurately to the contour of the pattern at the axial line; the " half moulding box or flask is then set by proper guiding surfaces " upon the table over the half pattern. Provision is made either in " the pattern itself, or by a raised ledge piece upon the table, for " bringing the actual axial line of the pattern even with the upper " surface of the loose plate; the sand is then rammed in at the " top of the box upon the pattern, and when the ramming operation is completed, the box is lifted directly off the pattern, " along with the loose bottom plate, which serves to bring the " moulded sand clear away with a good edge. This operation " being repeated, the two halves so moulded are placed together " forming a complete mould, and so on. When feet are to be " moulded upon the pot, they are represented by loose pattern " pieces, set in suitable guides at the proper parts of the pattern; " for this purpose the pattern is made hollow, so that the pattern " pieces for the feet can be pushed in and out from the interior. " On commencing to mould, these pattern pieces are pushed into " the interior of the main pattern, and when the flask has been " loosely rammed they are pushed out, so as to enter the proper " distance into the loose sand; the ramming is then completed,

" and the pattern pieces are again withdrawn into the interior of " the pattern, leaving accurate feet impressions in the sand. " Similarly other projections may be moulded where necessary by " sliding pattern pieces."

[Printed, 1*s*. Drawing.]

A.D. 1857, October 6.—Nº 2567.

STEVENNS, Ebenezer.—(*Provisional protection only.*)—" Machinery for making bread and pastry."

The invention " consists in an improved machine for mixing " dough and other similar substances. The machine consists of " a case covered with a suitable lid, which case has a circular " bottom, one end of which case is conical, there being an outlet " at the point of the cone through which the dough or other " similar substance is forced when sufficiently mixed. When " the dough or other substance is being mixed, this opening is " closed by means of a piston which fits the interior of the case. " Through the other end of the case an axis passes, on which a " cog wheel is attached, to which motion is communicated by " any suitable means. In the end of this axis, which projects " into the case, there is a square slot into which the end of an " axis is dropped and held in securely by means of a pin, to " which axis, blades, set spirally, are attached, which knead and " mix the dough or other substance; the other end of this axis " turns in a hole in the piston at the other end of the case. " When the dough or other substance is sufficiently mixed, the lid " is opened and the axis to which the blades are attached is " taken out of the case, and the piston which was at the conical " end is removed to the other end, and a screw is introduced " through a hole passing through the axis, in which hole there " is a screw thread which takes into the screw. The end of the " screw fits into a hole in the piston, and when the axis through " which the screw passes is caused to rotate, the screw forces the " piston along the case, and the piston forces out the dough or " other substance at the conical end, where it may be forced or " allowed to fall into moulds of the required form.

" The bottom of the case is formed double, in order that the " kneading or mixing chamber may be heated by means of steam " or hot water if required; the bottom of the case forming a " stand for the machine."

Another part of the invention consists "in making the kneading chamber and other parts of bread making machines of "enamelled iron."

[Printed, 4*d*. No Drawings.]

A.D. 1857, December 3.—N° 3001.

SLACK, Elijah.—Treating grain and vegetables.

The object of the invention is to produce "'thickenings,' "'finishers,' sizeing, and dressing materials for use in various "manufactures and articles of food." Corn is steeped in a solution of caustic soda, the length of the steeping and the strength of the solution varying according to the hardness of the grain. The grain may be previously subjected to a pressure of from fifty to three hundred pounds to the inch. Various other salts or alkalies may be substituted for the caustic soda. Also an acidulated solution may be used instead of an alkaline. A small proportion of malt may be mixed with the grain. The grain is then washed and dried, and ground or otherwise suitably treated.

Various vegetables rich in starch, either entire or in portions, may be treated in a similar way. After steeping, the vegetables are dried; if needful, bleached, ground, and sifted. Grain and other matters thus treated may be used "as a substitute for "arrowroot."

[Printed, 4*d*. No Drawings.]

A.D. 1857, December 15.—N° 3078. (* *)

BRADLEY, John.—Ovens.

The ovens are attached to kitchen ranges.

The "improvements consist in dispensing with fire underneath "the oven by the employment of a pipe or flue of metal or other "suitable material applied to the back or other convenient part "of the fire-grate, having an opening thereto and communicating "with the flues of the oven, which are arranged so that the "heated air or gases will be conducted from the fire to the "top, sides, bottom, and back of the oven, and thence to "the chimney,"

[Printed, 4*d*. No Drawings.]

A.D. 1857, December 16.—N° 3092.

GREGORY, Henry.—" Apparatus for making 'lozenges'."

The paste is delivered by an endless cloth between two rollers, to be rolled to the proper thickness. It is then passed between two stamping rollers. Each cylinder is fitted with four rows of holes, in which move plungers. These plungers are connected by rods within the cylinder, and these rods are actuated by grooved cams. When the paste arrives between the rollers, a set of plungers in the upper roller is moved out, stamps the paste, and drives the several portions of it into the corresponding holes in the lower cylinder, the plungers of which are retracted.

The upper set of plungers is withdrawn, and the cylinder (which has an intermittent rotary motion) partially revolves. The lower set of plungers now moves forward, and drives out the formed lozenges on a travelling apron. Brushes are arranged to cleanse the plungers after each stroke. The scrap paste is carried away by another apron.

[Printed, 1*s*. Drawings.]

A.D. 1857, December 22.—N° 3142.

LANDOU, Morris.—" Cooking utensils."

An " openwork cage " or case, of shape suitable to the article to be cooked is fastened to a handle, by which it may be placed in the saucepan. The handle may be of any shape, jointed, telescopic, or plain, and may have any number of " cages " attached to it, either permanently or so as to be removed. Or a cage may have a chain and cork float, or a spring to hold to the edge or side of the saucepan. The apparatus is principally intended for the cooking of eggs.

[Printed, 10*d*. Drawing.]

1858.

A.D. 1858, January 12.—N° 49. (* *)

JOHNSON, John Henry. — (*A communication from Edme Augustin Chameroy.*) — (*Provisional protection only.*) — " Boilers " and heating apparatus."

The principal feature of the invention is the use of metallic tubes or capsules closed at one end and open at the other. These communicate directly with the body of the boiler through one or two apertures, and they may be applied to an ordinary tubular boiler or may be arranged round a central tube so as to expose their surfaces to the heat. The boiler may be used amongst other things for desiccation and cooking.

[Printed, 4*d.* No Drawings.]

A.D. 1858, January 15.—N° 68.

MACINTOSH, JOHN.—(*Provisional protection only.*)—"Appa-
" ratus for the manufacture of articles of confectionery."

"This invention relates to the manufacture or production of
" what are known in the confectionery trade as 'pan goods' the
" entire mechanical action necessary for the proper shaping of
" the articles in the pan or apparatus being produced purely and
" solely by the mere rotation of the primary driving gearing."
" The parts consist of a short vertical stationary spindle on which
" is entered and hung to revolve freely a vertical holding frame.
" To the lower end of this frame is attached a horizontal bevil
" wheel in gear with a bevil pinion on a horizontal driving shaft
" communicating with the prime mover. The upper part of this
" frame is expanded into a circular, inclined, and recessed shallow
" dish or holder for holding the actual pan, which is steam-heated
" by a jacket in the usual way. Within this shallow frame are
" set a series of studs carrying grooved guide pulleys to serve as
" free supports for the pan. The pan is an oblate spheroid
" in form with an open top, and it has on its lower side a
" neck with a convex ring upon it to fit to the supporting pulleys.
" Attached by one end to the side of the pan is a lateral arm,
" the free outer end of which works in a vertical groove or
" fixed guide independent of the machine. The action of this
" apparatus is, that as the carrying frame is caused to revolve,
" its revolution tends to cause the rotation of the pan, but
" the latter is restricted from rotatory action by the lateral arm,
" which however can work freely up and down the vertical
" groove."

[Printed, 4*d.* No Drawings.]

A.D. 1858, January 16.—Nº 79. (* *)

ROSA, Edward.—(*Provisional protection only.*)—"Improve-"ments in the manufacture of dough and other plastic or porous "substances."

The invention relates to raising dough for bread by introducing any suitable gas into the flour and water.

The process is carried on "in a strong metal vessel, within "which is a secondary open top chamber," supported "clear of "the bottom" of the vessel on feet, and having within it a "revolving mixer actuated by a vertical shaft passed into the "interior through a stuffing box in the cover of the outer vessel." This chamber (which is partially filled with flour and water) "is "disposed eccentrically to the axis of the external vessel," and in the widest space between the outside of the inner and the inside of the outer vessel "there is entered through the top of the outer "chamber" an air or gas duct. "At this part there is also fixed a "flour reservoir, so as to encircle the delivery end" of the duct. The space between the two vessels "is filled with water prior to "commencing operations, when the apparatus is charged with "compressed air or with gas, and the contained materials are "allowed to remain under pressure until the water thoroughly "absorbs the aeriform matter; after this a valve, which opens "up a communication between the outer chamber and the inner "one, is opened by a handle from without, and when sufficient "liquid has thus been added to the flour in the inner chamber, "the agitator is turned gently at first until the flour and water "are properly incorporated; when properly mixed, the external "cover is removed, and the dough is taken out."

Or the flour reservoir alone may be filled with flour, while the inner vessel contains water; the apparatus being charged with air or gas, the flour is "shaken from the reservoir down into the "inner chamber, whilst the agitator or mixer is turned."

[Printed, 4*d*. No Drawings.]

A.D. 1858, February 6.—Nº 226.

MILLER, John.—(*A communication.*)—"Machinery for the "manufacture of bread."

A machine for dividing the dough into portions for loaves is described. The dough passes down an inclined plane on to a travelling apron. This apron carries it between rollers, by which it is rolled to the proper thickness. It then passes to another apron by which it is led below a cutter or stamper. This stamper has an alternate rectilinear motion given it by a crank, and the apron has an intermittent progressive motion, by which the dough is alternately subjected to the stamper, and carried on.

[Printed, 10*d*. Drawing.]

A.D. 1858, February 9.—Nº 237.

ASKEW, Charles, and RITCHIE, David. — "Roasting " machine."

A roasting screen has a spit fitted across it. This spit is supported in bearings on brackets, so as to be capable of being removed. One end fits into the end of a shaft and is held fast by a pin. On this shaft is a wheel from which an endless chain passes to another wheel at the top of the screen, on a shaft from which motion is given to a series of vertical spits. Another wheel on this shaft carries an endless chain fitted with buckets which raise the gravy from a pan below to a reservoir at the top. On the lower shaft is a wheel which actuates an excentric, and thus works a gravy ladle which raises the gravy to the top of the screen. At the bottom of the front part of the screen is a compartment for warming plates, etc. The dripping pan may have divisions to separate different sorts of gravy. A pump for the gravy is also employed. A bell on the spring jack is claimed, but not described. There is also said to be a "sliding frought under top " of oven."

[Printed, 8*d*. Drawing.]

A.D. 1858, February 9.—Nº 246.

STEVENS, Ebenezer. — "Machinery for preparing dough- " paste, and like articles."

"This invention has for its object improvements in machinery " for preparing dough, paste, and like articles. For these " purposes the upper part of the vessel in which the materials are " mixed, is by preference, of a rectangular, and the bottom of a " semicircular form. Through the bottom is an opening for the " passage of the dough, paste, or other article, there being a

" slide by which a portion can be cut off and the further passage " of the dough stopped when a sufficient quantity has descended " into a tin or other receiver below. The vessel is by preference " made of cast iron, and the interior thereof coated with enamel, " and below the bottom there is formed a hollow space for " receiving warm water. In the interior of the mixing vessel is a " stirrer, which consists of a cranked axis, the two ends of which " are arranged to be supported at the ends of the mixing vessel " in such manner that the cranked handle or other means of " driving the cranked axle may be readily attached and detached, " and allow of the cranked axis being conveniently removed out " of the vessel. On the cranked axis are applied one, two, or " more blades, which are bent spirally and in the rotation of the " crank in the vessel. These blades, assisted by the crank itself, " stir the materials and mix them." In large machines a metal cylinder, partly formed of wire gauze, revolves over the mixing vessel to distribute flour into it.

[Printed, 10*d*. Drawing.]

A.D. 1858, February 13.—N° 276.

RYFFEL, JOHN EMIL.—Stove for heating and baking.

The stove is constructed with two cylindrical cases, one outside the other. The outer case has a lid fitting in a groove filled with sand. It has also a hole at the bottom for admitting air; this is governed by a regulator. The inner case contains the fuel. On the top of the inner case is a "baking tin." The smoke, etc. passes off through an elbow which leads out at the side of the stove. The stove is called the "hygeian stove."

[Printed, 8*d*. Drawings.]

A.D. 1858, February 15.—N° 283.

BOUSFIELD, GEORGE TOMLINSON.—(*A communication from James Perry and Elisha Fitzgerald.*)—(*Provisional protection only.*) —"Preparation of dough."

An apparatus for generating carbonic acid gas is described. A generator, having an aperture at top for the introduction of the materials, and a discharge pipe below, is connected to another vessel containing sulphuric acid, which is admitted by a valve, worked by a weighted lever. There is a "stirrer" within the generator. Attached to the upper part of the generator is a pipe "enlarged near its upper end" that the gas may free itself from the effervescence of the materials in the generator. Above the enlargement is a safety valve. From the enlargement a pipe leads to a gasometer, and another pipe to the sulphuric acid vessel, in order to equalise the pressure therein. "For the better washing "of the gas the end of the pipe is coiled, and perforated with "numerous small holes." A pipe passes nearly to the top of the gasometer, and thence to the air pump. By means of a "compound way-cock" the gasometer may be put in communication with the air pump used to force the gas into the mixing vessel, or with the external air; also the air pump may be put in communication with the other parts of the apparatus. The flour, mixed with salt and water, is put into the mixing vessel, and gas pumped in. Or the water may be driven in through a rose. Or the water may be mixed with the gas and then pumped in.

[Printed, 4*d*. No Drawings.]

A.D. 1858, March 23.—N° 610.

QUINTIN, Charles Francis.—"Kneading machine."

A shaft carrying arms or beaters revolves in a trough, cylindrical at bottom. "Stationary arms" may also be employed. The lower part of the trough is made to slide out, like a drawer, and the top is hinged, so as to admit inspection of the contents. The shaft is revolved by any suitable power. The shaft may have "a "movement endwise in its bearings." More than one shaft may be employed.

[Printed, 8*d*. Drawing.]

A.D. 1858, March 25.—N° 629. (* *)

ELLIS, George Henry.—(*Provisional protection only.*)—"Im-"provements in kitchen ranges."

The invention is described in the following extracts from the Specification :—

"I divide the flue passages into two parts by a partition "near the top of the oven, the one passage leading directly from "the top of the fire passes over the top or crown of the oven, "forming a passage for the smoke, which is conducted thence "to the chimney, while below the level of the partition above "mentioned the heated air and products of combustion other "than smoke descend the space next the side of the fire, and

" pass by a flue or flues below at the back and other side of the " oven, and are conducted thence to the chimney."

"I separate the oven from the fire by a set of plates forming " louvers, against which the body of the fire rests, which louvers " can be moved, whereby the passage through them can be " increased or diminished. The space between the louvers and " the side of the oven forms the descending flue for the heated " air. I also provide such louvers at the back part of the fire to " admit and regulate the heat to the boiler."

"Another of my improvements consists in forming the top " or crown of the ovens of ceramic substances ribbed or fluted,"

"I form the top of the range of two-hinged flaps extending " from the back towards the front to about half of the area of " the fire. These flaps rise up when opened, stand up about " eight or ten inches (depending on the breadth of the fire) and " form the cheek plates of a channel for the smoke from the " fire."

[Printed, 4*d*. No Drawings.]

A.D. 1858, March 30.—N° 674.

STEVEN, THOMAS, REID, THOMAS, and FREW, THOMAS.—" Moulds for casting."

Among the articles for which moulds can be made according to this invention are several connected with the present series. In making moulds for "three-legged pots," the outer portions of the mould are rammed in a box divided by a central vertical plate, so that half the pattern is on each side of the plate. The two halves of the outer mould may thus be removed from the plate "hori- " zontally or nearly so," and brought together over a core previously formed on a separate plate within a box placed on it. This plate has an aperture through which the ramming is effected. The legs may be moulded in the ordinary way, and the "ears" may be moulded by half patterns attached to the vertical plate. " Camp ovens, range ovens, boilers, cisterns, and similar articles" may be moulded in the way above described, or the pattern may be fixed to the plate, the whole be inverted, and the core rammed through an opening in the plate. The pattern, etc. is then turned over again, and the outer part of the mould rammed upon it. To remove the pattern, this outer part is lifted off.

[Printed, 1*s*. Drawing.]

A.D. 1858, April 1.—N° 693.

COLETTE, EMILE AUGUSTIN.—" Mechanical chopping board."

A disc is mounted on a spindle supported by two uprights rising from the chopping board. On the spindle are tappets, which strike against hooks in the backs of a similar number of choppers and raise them. The choppers are hinged at their ends to an upright and are driven down by a spring when released by the tappets. The piece to which the choppers are hinged is mounted so that its angle to the board can be slightly varied. The board on which the substance to be chopped is placed, receives a rotary movement by means of a cog wheel below it.

[Printed, 10*d*. Drawings.]

A.D. 1858, April 3.—N° 706.

PELEZ, ANTONIO.—(*A communication.*)—" Circular cutter."

The description is rather short, but it appears that the machine consists of a number of rollers geared together and furnished with teeth. Above each pair of rollers is a hopper, by which seeds, etc. to be cut are supplied. A "regulator" is pressed by springs upon each roller, to insure the even distribution of the seeds, etc. to be cut. The machine may be "used in domestic economy" for cutting various matters.

[Printed, 1*s*. Drawings.]

A.D. 1858, April 27.—N° 936.

KEILLER, WEDDERSPOON.—Cutting vegetable and other matters.

" The apparatus consists of a pair of steel rollers made with " deep grooves or indentations. These rollers are arranged one " above the other, the annular projections of one roller being " opposite the grooves or indentations of the other. In this " manner the sharp angular edges of the annular projections " divide the material as it is passed between them in a manner " similar to the cutting action of a pair of scissors. The rollers " have fast to each of their spindles a toothed wheel, one of " which is put in motion by means of a handle secured to the " end of the spindle. The material to be cut is prevented from " lodging in the interstices of the cutting wheels by serrated " pices of metal, the teeth of which are directed towards the " grooves of the wheels. It is preferred to have two of these " comb-like clearers, one for the upper roller and one for the

" lower one, and they are fixed across the apparatus, just above
" and below the line where the cutting action takes place. The
" severed material is carried away from the cutting rollers by a
" pair of plain rollers, which are arranged parallel to the first
" pair. These rollers are driven by an intermediate wheel, which
" is in gear with one of the toothed wheels on the cutting
" rollers; the plain surfaces of these rollers press upon and grip
" the severed material, carrying it away from the cutting rollers
" and out of the machine as fast as it is divided. If the material or
" substance is required to be cut transversely, a cutter is fixed
" longitudinally in one of the drawing rollers. As the roller
" rotates, this cutter divides the substance into pieces of corre-
" sponding length. This cutting and reducing apparatus is en-
" closed in a suitable casing adapted to the particular purpose to
" which it is applied. The apparatus is well suited for con-
" fectioners' use in dividing cinnamon and other substances."

[Printed, 8*d*. Drawing.]

A.D. 1858, May 5.—Nº 1001.

HOLSTEAD, THOMAS.—(*Provisional protection only.*)—Machinery for making biscuits, lozenges, etc.

The dough is passed between rollers to give it the proper thickness. It is then delivered by means of a travelling cloth to a perforated table, through the holes in which work punches. This table and its appurtenances may be changed according to the nature of the paste or dough to be acted upon. If the articles are of large size, a thin reciprocating plate is used to support them, and they are, if needful, pricked or stamped by a descending plate fitted with prickers or stampers, while they are thus supported. Over the perforated table is a "cutting board," covered with india-rubber or other suitable material. As the punches rise, this falls, and the dough is stamped out between them. The punches are conical, and the formed lozenges, etc., either fall out by their own gravity, or are forced out by the succeeding series.

In a modification the cutters are stationary, and the perforated table moves vertically. It is fitted with its surface level with the tops of the cutters, and when the paste has been deposited on it the table falls, the "cutting board" descends on to the tops of the cutters, and the pieces are cut out as before.

The scrap paste is pushed forward on to a travelling apron.

[Printed, 4*d*. No Drawings.]

A.D. 1858, May 13.—N° 1080.

DELIRY, Felix Alexandre.—(*Provisional protection only*).—"Mechanical kneading trough."

The trough is of annular shape, having a space in the centre within which the machinery works. It is revolved on rollers, preferably by a steam engine working below it. At one side is a "paddle" revolving on a horizontal shaft. The paddle is of peculiar shape; it has two blades each of which is square at one corner and rounded at the other. At the other side is a vertical shaft, projecting downwards into the trough, and carrying on its lower end a "helical blade" which revolves to cut and separate the dough. The whole apparatus is driven by suitable gearing from the engine below.

[Printed, 6*d*. Drawing.]

A.D. 1858, May 22.—N° 1150.

WHITE, George.—(*A communication from Messrs. Fontaine & Co.*)—"Liquor suitable for manufacturing beverages, and for "culinary purposes."

The liquor is formed by dissolving tartaric acid in water or other solvent, and adding for flavouring an essential oil. Extract of fruit or saccharine matter may be added. Amongst other purposes it may be used "as a condiment for culinary purposes," by being mixed "with sauces, soups, meat, or other similar eatables."

[Printed, 4*d*. No Drawings.]

A.D. 1858, May 26.—N° 1180. (* *)

RIDDEL, John Charley, RITCHIE, David, WATSON, Andrew, and ALLAN, John Fleming.—(*Provisional protection only.*)—"Cooking ranges and other fire-places."

"In a modification of cooking range embodying certain of the "improvements, the smoke or gases from the fire pass into a flue "space formed upon the top of the oven, which is at one side of "the grate, and thence to the chimney by a passage at the back "of this flue space, being prevented from taking a direct course "to this passage by a diaphragm extending partly in front of it. "Provision is made for mixing with the smoke or gases in the "flue space over the oven a current of heated air."

"According to another portion of the invention the oven of a "cooking range or heating apparatus is made of fire-clay with

" the view of obtaining a more equable and uniform action of the " heat within it."

" According to another portion of the invention the oven of a " cooking range with an open fire-grate is heated by means of a " flue communicating with the fire-grate at the lower part of one " of its sides, and drawing off thence a portion of the fire gases " which are conducted round the oven, the remainder of the fire " gases passing up from the top of the grate, as is usual with " open fires."

[Printed, 4*d*. No Drawings.]

A.D. 1858, May 28.—N° 1198.

OSLER, Samuel.—" Manufacture of fish into guano and food."

The " water, oil, and gelatine " are extracted from the fish by " prolonged application of heat," and the remaining solid portions are prepared by " beating, rubbing, or otherwise mixing " them with " a suitable proportion of the gelatine or oil, or both, " and with salt, saltpetre, sugar, or other antiseptics, and with " pepper, cayenne, or other spices or condiments." The fish thus prepared is suitable for food. By another process guano is manufactured.

[Printed, 4*d*. No Drawings.]

A.D. 1858, June 5.—N° 1266.

PAGE, Michel. — (*Provisional protection only*.) —" Kneading " apparatus."

The dough is kneaded in a cylindrical vessel by arms fixed on a rotating shaft. This shaft is fitted so as to slide in its bearings and it receives a horizontal motion from a crank, this crank being connected to a ring on the shaft, within which it rotates. The rotary motion is obtained by a cog wheel on the shaft in the usual manner, which is presumably fitted so as to allow the shaft to slide in it without turning in it. No description is given of the mechanism, beyond the letters of reference to the drawing.]

[Printed, 6*d*. Drawing.]

A.D. 1858, June 8.—N° 1287.

KETCHUM, Isaac.—(*Provisional protection only*.)—" Self-acting " perforated baster."

"A vessel, of tin or other metal, or of any other suitable mate-
" rial, the bottom or sides of the same being perforated or pierced,
" is fixed or suspended from any bottle-jack, dangle, worsted, or
" any other contrivance for turning meat, &c., while roasting.
" The said vessel being above the joint of meat, poultry, game,
" &c., and being filled or supplied with fat, dripping, butter,
" grease, or any other material that may be used for roasting, it
" will pass through the perforations or holes, and drop upon the
" joint of meat, poultry, game, &c., the improved baster being
" supplied with means for regulating the flow of same, or not, as
" may be desired."

[Printed, 4*d*. No Drawings.]

A.D. 1858, June 14.—N° 1344.

NEALL, George.—Gas stoves and cooking vessels.

A metal ring is supported by three or more uprights, round which may also be fixed a second ring lower down, to strengthen the whole. At the bottom the uprights are fixed to a pan, and from the inner part of this pan rise other uprights supporting a ring. Upon any of these three rings cooking vessels of different sorts may be placed, or bars on which meat, etc. may be roasted. Round the edge of the pan is a gas tube fitted with burners and supplied by a flexible or other tube. "Air-ways" are provided so that the gas may be mixed with air before it is ignited. A cylindrical case surrounds the whole. This case is covered with a deeply-flanged lid which is fixed so that an air passage is left between the sides of the case and the flange of the lid.

The cover may be hung by chains passing over pulleys and with counter-weights, or it may be raised by other means. It may be made of corrugated iron throughout.

In a modification of the invention a similar apparatus is used without any covering. A central burner is also used in it. Over a hole in the gas pipe is fixed a short piece of tube having holes at the side for the admission of air. Air and gas are thus mixed in the tube and are burnt at the top of it.

Cooking vessels to be used with this or any other stove or range are made with a "series of concentric rings" on the bottom. These "vessels and rings may be made of tin." The rings are
" from half an inch to an inch deep, and about an inch from each
" other."

[Printed, 10*d*. Drawing.]

A.D. 1858, June 29.—N° 1462.

STEVENS, Ebenezer.—(*Provisional protection only.*)—" Cooking utensil."

The invention "relates to improvements in the cooking utensil " commonly denominated a baking dish, and consists in the construction and arrangement of an apparatus in which I combine " a stand upon which meat or other substance may be roasted or " baked, a dish in which vegetables may be cooked, a pudding " and pie dish, and a stew pan. For this purpose I construct a " vessel similar to an ordinary stew pan, which may be round or " any other convenient shape. Another vessel of similar form is " also made, having a rim at each side at right angles to its " bottom, such rims being of unequal widths, and thus forming " two vessels of unequal depths. This vessel, when placed within " the stew pan, after the manner of the lid of a saucepan, with " its shallowest side upwards, forms a pudding tin, and when its " position is reversed, or the deepest side placed upwards, it forms " a pie dish. A dish with a perforated bottom, and supported by " three or more metal legs or stands, when placed in the last-named pudding tin or pie dish, forms a vessel in which vegetables may be cooked, the perforations allowing the fat or gravy " from meat which may be cooked above it to pass through the " vegetables into the vessel below; and in this dish or collander " a stand made of metal or other substance may be placed to " receive meat or other material to be roasted."

[Printed, 4*d*. No Drawings.]

A.D. 1858, July 1.—N° 1477.

CLARK, William. — (*A communication from Messrs. Poirot, Bouilliant and Co.*)—Gridirons.

The invention relates to gridirons, " the bars of which are to a " certain extent overlapped and raised one above another, and " forming a surface impassable in a line perpendicular to the " general plane of the bars." "The bars may be single or double, " and form with the cross pieces a flat, curvilinear, or angular " surface at any degree of inclination." The drawings show two gridirons, one rectangular, formed of S-shaped bars, each being " severally inclined, and the combination therefore being also " inclined according to the 'radius vectors' of the 'parabola.'"

There is a central bar, forming a "ridge or hog back." The side bars are V-shaped, and there is a "canal into which all the bars "empty the fat they contain." The other gridiron figured is "made of a single bar wound in a spiral form, and terminating "in a fat reservoir," "the spirals being superposed or raised one "above the other."

[Printed, 8*d*. Drawings.]

A.D. 1858, July 3.—N° 1498.

BOND, William, and STANDING, Thomas.—"Apparatus "for churning."

The apparatus is also serviceable as an egg-beater, and for stirring and mixing liquids of various sorts. It consists of a vessel "to the upper edge of which is fitted a bar or frame carrying a horizontal driving shaft, which is furnished with a fly "wheel and winch handle. Near the middle of this shaft is "keyed a bevil wheel or pinion, which gives motion to a corresponding bevil wheel fast on the upper end of a vertical shaft "working in the centre of the vessel, and supported in a suitable "footstep bearing placed on the bottom thereof. To the opposite "ends of this central vertical shaft are keyed a series of radial "arms, which form the bearings of a set of agitating shafts, fitted "with convenient agitators or open revolving frames. On the "under side of the cross bar or frame, which is secured to the top "of the vessel, is fixed a spur wheel, which remains stationary, "and into the teeth of which gear a series of spur wheels or "pinions fitted one on to the upper end of each of the agitating "shafts. These small wheels or pinions may either gear directly "with the stationary wheel, or through the intervention of an "intermediate wheel. On imparting a rotatory motion to the "central vertical shaft by turning the winch handle, the radial "arms with their agitating shafts and agitators will revolve "round the central shaft, and through the intervention of the "wheels on the agitator shafts will at the same time rotate round "their own axes."

[Printed, 8*d*. Drawing.]

A.D. 1858, July 5.—N° 1509.

HODGKINSON, John.—"Apparatus for kneading dough."

"The improvement consists in providing each end of the "kneading trough with one or more pair of crooked or bent arms

" or blades, each secured upon a short central stud or shaft, " only passing through the ends of the trough sufficiently to " support the arms inside the trough; these shafts and arms are " caused to rotate in opposite directions by spur gearing or " otherwise, actuated either by steam or hand power, so as to " cause the arms to twist and turn over the dough in a similar " manner as when kneaded by hand, the operation being per- " formed quicker than by hand, and the quality of the bread is " thereby much improved. This apparatus may also be employed " for reducing or cutting up the potatoes used in the manufacture " of a certain class of bread by employing knives instead of the " crooked arms."

[Printed, 8*d*. Drawing.]

A.D. 1858, July 8.—Nº 1539.

HARRISON, SAMUEL.—Ovens.

The ovens are of sheet iron and heated by gas. Three or more are arranged one over the other with a space between every two, and an external casing surrounding all. There is a gas burner under each oven, but the heated air from each burner flows past all the ovens above it. The bottom plate of each oven is on the side extended to the external casing, so that the heated air passes backward and forward between each pair of ovens before it escapes at the top. Each oven has a separate door, and is quite distinct from all the rest.

[Printed, 10*d*. Drawing.]

A.D. 1858, July 12.—Nº 1560.

MACINTOSH, JOHN.—(*Provisional protection only.*)—" Manu- " facture of articles of confectionery."

The articles in question are "pan goods," which are shaped entirely by the rotary motion of the pan. " Under one modifi- " cation of machinery or apparatus by means of which these " improvements are practically carried out, the parts consist of a " short vertical stationary spindle, on which is entered and hung " to revolve freely a vertical holding frame. To the lower end " of this frame is attached a horizontal bevil wheel in gear with " a bevil pinion on a horizontal driving shaft communicating " with the prime mover. The upper part of this frame is ex- " panded into a circular inclined and recessed shallow dish or

" holder for holding the actual pan, which is steam heated by a " jacket in the usual way. Within this shallow frame are set a " series of studs, carrying V-grooved guide pulleys to serve as " free supports for the pan. The pan is an oblong spheroid in " form, with an open top, and it has on its lower side a neck " with a convex V ring upon it to fit to the supporting pulleys. " Attached by one end to the side of the pan is a lateral arm, the " free outer end of which works in a vertical groove or fixed guide, " quite independent of the machine. The action of this apparatus " is, that as the carrying frame is caused to revolve, its revolu- " tion tends to cause the rotation of the pan; but the latter is " restricted from rotatory action hy the lateral arm, which how- " ever, can work freely up and down the vertical groove. In " this way, although the pan does not really revolve, it receives " a peculiarly powerful differential action."

[Printed, 4*d*. No Drawings.]

A.D. 1858, July 20.—N° 1641.

PETRZIWALSKY, JOHANN VON NEPOMUK SIEGMUND.—" Manufacture of bread."

The invention is said to consist " in communicating or imparting " to dough " when in an unprepared and moistened state, " a tearing or separating action." It is not stated how this process is to be performed.

An oven is also described. It is heated directly by a fire at one end. The products of combustion pass into a flue at the other end which leads them back over the top of the oven to a chimney directly above the fire-place. Dampers are placed where this flue enters the chimney to regulate the heat. Behind the fire is a " metallic block " against which a jet of water can be directed from a pipe. The steam thus produced is allowed to play upon the bread for eight or ten minutes. By this means a glazed surface is produced on it. There is a glass window in the oven to admit of the inspection of the process.

[Printed, 6*d*. Drawing.]

A.D. 1858, July 30.—N° 1717.

LUIS, JOZÉ.—(*A communication.*)—(*Provisional protection only.*) —" Machine for cutting up almonds for the use of confectioners " & others."

A cylindrical vessel is mounted on a stand. Through its centre passes an axle, turned by a handle at top. On this axle is mounted a disc with holes large enough to allow almonds to pass through. Blades are fixed so as to rest against the lower side of the disc, and as the almonds drop through, they are carried against these blades and sliced. At the side of the machine is a "pusher" to guide the almonds over the holes.

[Printed, 6*d*. Drawing.]

A.D. 1858, August 2.—N° 1744.

SCHLESINGER, JOSEPH WILLIAM.—(*A communication.*)—"Machine for roasting and basting."

A spit revolves horizontally in bearings, driven by a spring movement through a train of wheels. It "carries a set of two "or more arms" "which, revolving with the spit, actuate upon "a cam fixed on the inner end of a shaft turning at right "angles" to the spit. The outer end of this shaft carries a jointed lever, which is parallel with the spit, and this lever carries a spoon. The spoon is thus carried up and down, and it conveys the gravy, etc. from the dripping pan to a trough over the meat. To empty the spoon into the trough, a stop catches the lever, and tilts the spoon.

The motion of the spit is regulated by a fly wheel. To the wheel are attached by chains two small balls. When the wheel slackens, these balls fall and strike a bell to announce that the apparatus requires to be wound.

[Printed, 10*d*. Drawing.]

A.D. 1858, September 11.—N° 2062.

BAKER, WILLIAM.—(*Provisional protection only.*)—"Preparing "food."

"This invention consists in combining the following ingre-"dients:—Indian meal, locust beans, oatmeal, rice, carbonate of "soda, turmeric, caraways, ginger. These ingredients are finely "powdered and mixed together, being all first kiln dried; the "composition is then packed in packages, and is fit for imme-"diate use. The composition may be made into bread or cakes, "or may be made into puddings in the same manner that rice is "now used."

[Printed, 4*d*. No Drawings.]

A.D. 1858, September 18.—N° 2106.

LUIS, JOZÉ.—(*A communication.*)—Applying centrifugal force in various manufactures.

Among the processes to which the invention is applied is the drying of yeast. The yeast is delivered to the interior of a drum, the sides of which are formed of wire network or similar material and covered with porous cloth. This drum revolves on a vertical shaft within a suitable vessel at the bottom of which is a receptacle for the liquid driven off through the meshes of the drum. To assist the process there is a hole in the bottom of the drum, closed by a cork. The drum is occasionally stopped, and the liquid allowed to run out of this hole, while the solid matter remains adhering to the sides of the drum.

[Printed, 8*d.* Drawings.]

A.D. 1858, September 18.—N° 2111.

VICARS, THOMAS, senior, VICARS, THOMAS, junior, and ASHMORE, THOMAS, and SMITH, JAMES.—" Chauffers."

The object of the improvements is to enable "chauffers" or moveable furnaces for heating ovens, to become smoke-consuming. The ash-pit of the chauffer is surrounded by a shell or box from which air-passages lead to the edge of the fire-box. The air thus conveyed mixes with the products of combustion and causes the smoke to be consumed. The box surrounding the ash-pit is supplied with air by a tube which forms the handle of the chauffer, and the amount may be regulated by a valve worked by a rod carried along the tube. The fire-box is mounted on wheels so that it can be easily pushed into the oven.

[Printed, 6*d.* Drawing.]

A.D. 1858, October 7.—N° 2231.

FELLOWS, NOAH, the younger.—(*Provisional protection only.*) " —Tea kettles and other like domestic vessels."

" This invention consists in forming the bottoms of tea kettles " and other like vessels concave, and carrying a pipe or pipes " from the bottom, through the body of the vessel, and out of " the side or top thereof, so as to form a flue or flues through " which flame and heat may pass, thereby presenting a large " heating surface, and preventing the vessel choking the fire. By

" this arrangement a vessel may be formed that will boil water " and so forth very quickly on an open fire."

[Printed, 4*d*. No Drawings.]

A.D. 1858, October 19.—N° 2338.

GRANT, John.—Ovens.

"This invention has for its object improvements in constructing and arranging ovens suitable for baking bread for military " and other purposes. For this purpose two furnaces are constructed, one opposite the other, and the heat from these " furnaces passes into a chamber between the two furnaces, and " in this chamber are placed two, four, or a greater number of " ovens," "and they are arranged in such a manner as to have " spaces or passages between the arms and the end and top and " bottom of the chamber, and also between the ovens themselves, " so that the products of combustion from the furnaces in passing " to the flue which leads from the top of the chamber, come in " contact with three of the sides, and with the top and bottom of " each of the ovens. The ovens are constructed of wrought-iron " plate, and are furnished with a double door in front; they " slide into their places in the chamber, and rest on bars suitably " placed, and they are also furnished with flanges, and these are " secured by bolts to the frames which form the sides of the oven " chamber. In order that the parts of the ovens which the heat " first strikes may not be thereby injured," the furnaces are so arranged that the fire bars are "some distance removed from " the oven chamber." In the spaces so obtained boilers or kettles for heating water or cooking are placed.

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1858, November 16.—N° 2570.

JOHNSON, John Henry.—(*A communication from Monsieur Vallée.*)—Apparatus for kneading dough."

The invention "relates to a peculiar construction and arrangement of machinery or apparatus especially adapted for kneading " dough in the making of bread on board ship, or for working " and mixing plastic substances of all kinds requiring such " treatment. The apparatus consists of a suitable frame or " support fitted with a kneading trough, having a curved or " semi-circular bottom, and within which works the kneader.

" This kneader consists of a metal frame fitted with a trellis, " which is capable of being removed at pleasure. The kneader so " formed fills the transverse area of the trough, and is caused to " pass to-and-fro along the bottom and upper surface of the " trough by the aid of a long slotted arm extending upwards from " the upper edge of the kneader, and working over a fixed guide pin " in a portion of the framing of the machine. Motion is imparted " to this kneader by a revolving crank or eccentric, the pin of which " is secured to the slot in the arm before referred to. As the " crank revolves it causes the kneader to travel along the bottom " of the trough until it reaches the end thereof, when it rises to " the surface, bringing with it the paste which was below, and " travels back along the surface to the opposite end of the trough " again. Suitable spur gearing and a fly-wheel is employed for " imparting and regulating the motion of the machine. When " out of use the trough may be covered over by a board, when it " will serve as an excellent kitchen table, whilst the under part " of the machine forms a species of safe or larder."

[Printed, 8*d*. Drawings.]

A.D. 1858, December 3.—N° 2764.

NOONE, George Edward.—" Machinery for generating gas."

The only part of the Specification which has reference to this series, describes alterations in a cooking range to enable a gas-generating apparatus to be connected with it.

Two cylinders are fixed to the hot-plate of a range so that they project into the fire and are heated by it, a blower being attached to the front of the grate to increase the heat. Other moveable cylinders, filled with coal, are placed within the fixed cylinders, and the gas thus generated is carried off through pipes to various chambers where it is washed by passing through water and purified by passing amongst lime in the usual way.

[Printed, 1*s*. Drawings.]

A.D. 1858, December 18.—N° 2898.

KETCHUM, Isaac.—Basting apparatus.

A perforated vessel is suspended over the meat below the jack. This distributes the dripping, etc. over the meat. A sort of pump may be used to raise the gravy from the dripping pan to this vessel. A cylinder is " so arranged that fat or dripping shall "pass from the dripping pan" into it. In this cylinder a piston works, driven by a spring. From the bottom of the cylinder, a pipe conveys the gravy, etc. The opening to this pipe is fitted with a valve. The drawing does not show any method by which the gravy, etc. is to be introduced below the piston. Instead of this a force pump, to be occasionally worked by the cook, may be used.

[Printed, 6*d*. Drawing.]

A.D. 1858, December 27.—N° 2954.

RADLEY, JOHN.—"Cooking apparatus."

The fire-place is in the centre. It has doors in front, and a removeable plate above. The bottom can be raised and lowered to alter the size of the grate. There is an oven at each side, with a "rotary case or roasting apparatus turning upon horizontal "axes;" as the different joints in it revolve over and under one another, they baste one another. There is a boiler behind with steam pipes. Over the fire and ovens is a hot-plate, with recesses for saucepans, etc. Above all is a rack for heating plates, etc. The apparatus is adapted for use on board ship.

A modification of the apparatus is shewn, suitable for camp purposes. It is mounted on wheels. The jack receives motion from the axle of one of the hind wheels. The flues pass to a chimney at the side, in which is a damper. By removing the jack, the ovens are available for baking bread.

[Printed, 10*d*. Drawing.]

A.D. 1858, December 27.—N° 2955.

STEVEN, THOMAS, and SCOTT, THOMAS. — Cooking ranges, etc.

The door of a cooking range is made with a series of openings, formed by "venetian" "or oblique" bars either fixed or adjustable. The openings may be horizontal and divided by "vertical cross ribs," radial, or otherwise arranged. To regulate the draft a "shutter" is used.

The bottom of a boiler is made corrugated and may be arched. Flanges, either solid, or hollow to constitute water spaces, may be made on the boiler.

In "close-fire" ranges, a flue is led up the chimney from the fire-place far enough to provide a draught without having the chimney closed, so that the vapours from the cooking may pass up the chimney. A valve in this flue regulates the draught. By opening the door and the cover, the range becomes an open one. A valve in the flue passage under the oven is used to modify the amount of heat given thereto.

In making sliding dampers the frame of the damper is made of a single casting, the groove for the damper being made by a suitable core.

Doors for ranges are cast in position on the frame. The frame is cast with the sockets, etc., and embedded in the sand when the door is cast on to it, the metal running into the sockets and forming the pivots of the hinges. As the metal cools, it shrinks sufficiently to make the hinges loose. Or, if the door is large, one hinge may be formed in this manner, and the other after casting the door, the frame being cast "with a dovetail recess," and "the " hinge socket being moulded and cast with the frame and door in position." This process may be modified by casting the parts in a different order.

The grate of a range may consist of "a built-up series of bars," and the spaces between the bars may open into the oven, so that the heat is radiated direct into the oven. A sliding door may separate the oven and the grate.

The remainder of the specification refers to stoves for warming, boiler-furnaces, etc.

[Printed, 1*s*. Drawings.]

A.D. 1858, December 31.—N° 3002. (* *)

MAUREL, Timoléon Zoé Louis.—(*Provisional protection only.*)—" An apparatus protracting indefinitely the working of " any mechanism set in motion by springs."

The invention is applicable to roasting jacks. The inventor says " I propose to furnish any mechanism motived by springs " —a clock for instance—with a series of small barrels of equal " size, turning in the ordinary manner independent in their " axes, and communicating with each other by wheels of equal " diameter; each of these barrels is furnished with a spring " attached by one extremity to the drum or cylinder of its barrel, " and by the other to its spindle, the position of each spring being " regulated by the number of barrels employed. The shaft of the " first of these barrels carries at one extremity a handle by which

" it is turned, and at the other a paul and pinion to prevent its
" return, and the shaft of the last barrel carries a wheel by which
" it is connected to the clockwork. Supposing twelve barrels to
" be used, by turning the handle on the shaft of barrel No. 1, I
" successively wind up the springs of each barrel up to No. 12
" (I usually place two barrels upon each shaft, excepting the first
" and last, which carry but one), the shaft of which carries the
" wheel gearing on to the ordinary clockwork. The clock being
" set in motion, it follows that as the spring No. 12 goes down it
" is every moment re-wound up by spring No. 11, and so through-
" out the series until all the springs run down together. The
" number of revolutions made by the connecting wheel will equal
" the turns taken by the whole of the springs, that is to say, if
" each spring of the twelve barrels turn eight times, the con-
" necting wheel will make ninety-six revolutions ere the apparatus
" runs down."

[Printed, 4*d.* No Drawings.]

1859.

A.D. 1859, January 1.—N° 4.

GOSTEAU, Benoit Joseph.—Gridiron.

The fuel is contained in a pan of wire, gauze, or perforated metal, fixed directly above the pan containing the meat to be cooked. The apparatus may be made portable, fitted on a small stand, or it may be a fixture. A stand may be placed over the fuel to receive saucepans, etc. A pipe may be attached to carry off the smoke. The advantages claimed are that the fat does not fall into the fire, while the vapour from the cooking is consumed by being passed through the fire.

[Printed, 10*d.* Drawing.]

A.D. 1859, January 1.—N° 5.

DROUOT, Joseph Eugène.—" Bakers' ovens."

Boiler tubes for supplying steam to a motive-power engine are fitted "in the arches of the ordinary ovens." " Pipes may pass " in " the "center" of the tubes, to carry off the products of combustion. " These pipes communicate with a boiler placed

" tranversely or longitudinally in the upper part of the oven, and " the products of combustion heat the boiler before they escape " into the chimney." The steam from the tubes " goes in the " boiler." An additional furnace may be fitted to heat the boiler separately. Taps may be placed to cut off communication between the tubes and the boiler. The inventor also proposes " by lining the inside of the oven as it is generally, to arrange " under the arch a series of boiler tubes, corresponding to the " opening for the escape of the steam or gas."

[Printed, 4*d*. No Drawings.]

A.D. 1859.—January 1.—N° 21.

BOUSFIELD, George Tomlinson.—(*A communication.*)—" Forming dough into cakes."

The dough is received in sheets upon an inclined table which may be fitted with a series of small rollers. Thence it is received by a pair of fluted rollers, which divide it into strips. A scraper clears off superfluous dough which adheres to the roller between the grooves. Those strips are guided down fixed diverging grooves to another set of rollers, which have grooves further apart. In these they are still further flattened and pressed. The strips then pass downwards through a hole in a plate. When sufficient has passed to form a " cracker," it stops. To effect this the rollers have all an intermittent motion given them by suitable means. Two clamps seize the dough below, and hold it, while a thin knife is pressed forward by a spring and cuts off the portion required. A presser rises from below, and presses the piece of dough upwards against the knife blade to form it. Between this presser and the dough is an endless apron stretched below the machine. A thin blade next passes forward and separates the dough from the knife; it falls on the apron, and is carried forward to rollers by which it is again flattened. Before each set of these rollers straight edges are fixed, to guide the pieces of dough. Next the pieces are carried to an inclined table, from which they are delivered by scrapers moving backwards and forwards to pans for baking.

[Printed, 1*s*. Drawing.]

A.D. 1859, January 19.—N° 164.

STEVENS, Ebenezer.—" Cooking vessel."

The invention " relates to improvements in the cooking uten-" sils commonly denominated a baking dish, and consists in the

" construction and arrangement of an apparatus" in which is combined "a stand upon which meat or other substance may be " roasted or baked, a dish in which vegetables may be cooked, a " pudding and pie dish, and a stewpan." For this purpose there is "a vessel similar to an ordinary stewpan, which may be round " or of any other convenient shape. Another vessel of similar " form is also made having a rim on each side at right angles to " its bottom, which rims being of unequal widths, thus forming " two vessels of unequal depths. This vessel when placed within " the stew pan, after the manner of a lid of a saucepan, with its " shallowest side upwards, forms a pudding tin, and when its " position is reversed, or the deepest side is placed upwards, it " forms a pie dish. A dish with a perforated bottom, and sup" ported by metal legs or stands, when placed in the last-named " pudding tin or pie dish, forms a vessel in which vegetables may " be cooked, the perforations allowing the fat or gravy from the " meat, which may be cooked above it, to pass through the " vegetables into the vessel below, and in this dish or coleander a " stand made of metal or other substance may be placed to receive " meat or other material to be roasted, thus forming, when com" plete, a meat stand, a vegetable dish, a pudding and pie dish, " and a stewpan in one utensil, the whole of which may be used " as one combined apparatus, or any one or more parts thereof " may be used separately."

[Printed, 4*d*. No Drawings.]

A.D. 1859, January 27.—N° 251.

HUGHES, Edward Thomas.—(*A communication from Messrs. Pascal and Sirben.*)—" Manufacture of biscuits."

Gluten or wheaten flour "or other farinaceous vegetable" are mixed with oil, butter " or similar nutritious matters."

Proportions: 1 kilogramme gluten, 800 grammes flour, 40 grammes oil, etc. The dough is kneaded in any suitable way.

[Printed, 4*d*. No Drawings.]

A.D. 1859, February 1.—N° 290.

WALLER, George Arthur.—" Apparatus for expressing " liquid from semi-fluid substances."

Among other purposes, the apparatus may be used in preparing barm. A vessel with perforated sides contains the matters to be acted upon. Within this vessel is a bag of caoutchouc or other suitable material, which is capable of being filled with air, water, gas, etc., by means of a force pump. As this is done the liquid is pressed out from the substances under treatment. The bag may be attached to an iron ring fitting on the top of the straining vessel. To break up any crust that may be formed, a frame is fitted within the strainer so as to be capable of being revolved by suitable gearing.

[Printed, 8*d*. Drawings.]

A.D. 1859, February 7.—N° 345.

HUGHES, Edward Thomas.—(*A communication from Her Von Langen.*)—(*Provisional protection only.*)—Ovens.

The following is the entire specification :—

" This invention relates to all kinds of domestic ovens, but " particularly to large ones where extensive batches are baked " requiring much space and fuel, and consists of arranging two " or more fires under the oven, the heat and smoke of the lower " fire passing through the one above it by means of the grate " bars, which bars may be made of fire-clay or metal tubing; if " the latter, they must be filled or partially filled with water. " Water is also placed in the ash-pit under the bottom fire to " extinguish the hot cinders and ashes that fall and prevent " prejudicial vapours that would arise therefrom.

" From the top fire, flues or fire ways are so arranged that " the heat will spread under, over, or around the oven, and will " be heated from without, or, if preferred, the heat may be passed " directly into it, and if desired the heat may pass through the " flues from one fire only, as some ovens may require no upper " heat and others no under heat.

" Each of the said flues has two openings, with valves or " similar contrivance to regulate the flame and heat at pleasure, " and also outlets to the chimney, which have also valves to " regulate the escape.

" There are also one or more openings in the oven to allow the " escape of steam, which secures the necessary draught, and " allows the smoke to escape if the flame is passed through the " oven, the said openings communicating with the flues afore- " said."

[Printed, 4*d*. No Drawings.]

A.D. 1859, February 12.—N° 398.

HUNTLEY, Samuel Hazard.—" Cooking apparatus."

" The apparatus consists of an oven built of brick or stone, " and heated by a fire, the flame from which passes into the oven " and out at a flue. The oven is surrounded with brickwork or " masonry, in which flues are formed and provided with open- " ings and sliding doors. A furnace is connected with these " flues, and the flame passes through them to a chimney. A " number of pots or saucepans are fitted into the openings in the " flues, and serve for boiling meat or vegetables, and for pre- " paring soup and other articles, and a corresponding number of " vessels with perforated bottoms for steaming vegetables, fish, " puddings, and other articles, are made to fit over these boiling " pots or saucepans. The same furnace heats the oven and the " pots, being provided with suitable dampers or registers for ad- " justment to either purpose; or two separate furnaces are used " and so arranged that the fuel may be readily removed from one " to the other. A boiler is placed over the oven door, or at any " convenient part of the flue, from which hot water can be drawn " when required, and which also supplies steam to a novel " arrangement of dishes or troughs with a plug in each, which is " made to answer the purpose of a tap for the admission of the " steam. The above-mentioned steaming vessels are made to fit " over these troughs, and can then be used for steaming vege- " tables or other articles of food for men, or for horses or cattle " when required. By this combined apparatus the processes of " roasting, baking, boiling, and steaming may be carried on " simultaneously, or bread may be baked in large quantities."

[Printed, 10*d*. Drawing.]

A.D. 1859, March 1.—N° 539.

MOULE, Henry.—Evaporating sewage.

Several apparatus for this purpose are described. In one, a cylindrical or oblong boiler is fixed with an outer case. At the bottom of the case is a grate. A flue passes through the boiler. A pipe at one side supplies the sewage water to the boiler, and another at the opposite side leads from the top of the boiler downwards to a space below the grate. There it is perforated with small holes, to allow the gases, etc. to rise through the fire and be burnt. Of this apparatus the inventor says: " I also, in some cases, charge

" the boiler with fresh water, and use a portion of the steam generated for cooking and other purposes." Also, the sewage may be placed in a drawer under any grate, so that the gases from it are burnt. "This," says the inventor, "I have used with foul " and greasy water in kitchen ranges and kitchen and parlour " grates with great saving of fuel."

[Printed, 10*d*. Drawing.]

A.D. 1859, March 2.—N° 551.

DEARLOVE, William Francis.—(*Provisional protection only.*) " Chopping machine."

"The machine consists of a cylindrical box or drum, the bottom " thereof constituting the chopping board upon which the knives " or cutters herein-after mentioned work, the same being made " with a flat or curved surface, as may be considered desirable. " The box or drum is so attached to the said board as to be readily " opened or removed therefrom for the introduction and removal " of the substances submitted to the operation of the machine. " The top or cover of the cylindrical box or drum is so constructed " and arranged as to be capable of having a rotary motion " given to it, whenever desired, without detaching it from the " cylinder or drum. The knives or cutters are arranged in " such a manner as to cross each other at suitable angles and " distances, or are placed at suitable distances parallel to each " other, the edges thereof being either straight or curved in order " correspond with the surface of the chopping board, and are " attached to a handle or handles passing through the cover of " the box or drum. In the interior of the cylinder is placed a " frame connected to and revolving with the cover, such frame " being provided with teeth or scrapers, so arranged that upon " the knives or cutters passing the same, they are cleansed and " freed from any substances which may have adhered thereto in " the process of chopping."

[Printed, 4*d*. No Drawings.]

A.D. 1859, March 3.—N° 565.

HALE, Albert W.—(*Provisional protection only.*)—" Machine " for cutting or mincing meat, vegetables, &c."

One or more " grooved cylinders or rollers " revolve in " a ribbed " or grooved case." The grooves are spiral, and deeper at one end, gradually tapering to the other end, at which the material is fed in having them deepest. A knife is fixed so that the cylinders work against it. There may be a single cylinder with a knife at each side, or preferably two cylinders with a knife between them. The knife edge in this case is placed "at that point or line where "the grooved cylinders leave each other." The flanges of the cylinders "lap a little," so that one will drive the other without intervening gearing. When a single cylinder is employed, the knives are "placed in recesses," "so as to allow the article as cut "to pass over the knife," and then be carried round and again brought against the knife.

[Printed, *4d.* No Drawings.]

A.D. 1859, March 8.—N° 605.

RYDER, John Northcote.—(*Provisional protection only.*)—"Preserving fruits."

The fruit "is placed in a suitable pan, or vessel, to which heat "can be conveniently applied, and, by preference, by a steam "jacket. This pan or vessel is arranged in a suitable manner to "have the atmospheric air and vapour removed therefrom by a "suitable air pump or apparatus for obtaining vacuum. The "pan or vessel is by preference circular with its bottom slightly "inclined to the centre, where there is a valve to withdraw the "charge when completed. This pan or vessel is set in a jacket, "and is stayed thereto in order to give strength. Around the "upper edge of the pan or vessel is framed a hollow groove to "receive the lower edge of a dome-shaped cover. At the bottom "of the hollow groove a ring of vulcanized india-rubber is inserted, "so that when the dome-shaped cover is pressed down by the "external atmosphere, the joint will be rendered sufficiently "air-tight, or, if desired, fusible metal or other suitable fluid or "material may be applied in the lower ring; the fruit is placed "on the bottom of the pan or vessel, and over it is dusted the "requisite quantity of refined sugar; the cover is lowered, and "communication is opened with the air pump or apparatus used "for withdrawing the air and vapour. The extent of vacuum "may be varied according to the effect desired to be produced, "and a guage is employed to indicate the vacuum."

[Printed, *4d.* No Drawings.]

A.D. 1859, March 25.—N° 758.

NEWTON, William Edward.—(*A communication from Thomas Russell.*)—" Ovens for baking bread."

The oven is built with a furnace below it. It has two doors in front, side by side, one for receiving and the other for discharging. In front of the doors is a platform. The bread is placed on a carriage which runs on wheels or over fixed rollers into the oven. The carriage is drawn in by means of an endless chain into which a catch on the bottom of the carriage takes. Arrived at the end of the oven, another catch takes into a fixed screw extending across and below the rails on which the carriage runs. By this it is carried across the oven. Another endless chain then carries it back to the front of the oven, where it passes out of the discharging door. Another screw is arranged to carry it across the platform to the receiving door. These doors may hang on hinges at the top, or slide, so as to yield as the carriage pushes against them. If they slide, the end of the carriage is inclined, so as to enter underneath and raise them.

[Printed, 8*d*. Drawing.]

A.D. 1859, April 11.—N° 901.

ANDERSON, James.—(*Provisional protection only.*)—" Im-" provements in the construction of the furnaces of bakers' ovens " for the purpose of consuming smoke."

The inventor says :—

" I provide an additional flue which is carried into the main flue " of the oven ; in this additional flue I insert a damper for the " purpose of regulating the supply of air to the main flue ; the " air flue thus terminating in the chimney, the boiler or oven " receives the full benefit of the flames without the temperature " being lowered by the direct introduction of cold air. Dampers " are provided in the furnace flue to regulate the strength of the " draught, the mode of operating the dampers is as follows :— " When the furnace damper is fully open, the smoke arising from " the furnace will be the same as that of an ordinary furnace or " chimney ; this damper requires to be fully open for about 10 " or 15 minutes, until the flame breaks right through the coals, " that is, when the coals are placed upon the grate. In the addi-" tional air flue near to the point where it joins the furnace flue, I " insert a damper for the purpose of regulating the air draught,

" the air draught must be regulated by the strength of the furnace " draught; this can be effected by means of the dampers placed " in the furnace and air flues. In one instance, where I have " employed this arrangement, the furnace flue is 9 inches square, " and the air flue is 9 + 12 inches. This proportion is found to " work well, the height of the chimney being 50 feet. Where " there are two furnaces and the flues are connected in one " chimney, there must be an air draught flue for each furnace " with suitable dampers for regulating the supply of atmospheric " air to the furnaces."

[Printed, 4*d*. No Drawings.]

A.D. 1859, April 20.—N° 992. (* *)

BECK, Quin.—(*A communication from James Cherry.*)—Stoves.

"This invention consists in constructing stoves with tops or " covers capable of being revolved, in order to expose pots, pans, " or other vessels placed in apertures in the covers immediately " to and over the fire, or to remove them to a part of the stove " where they will be exposed to less heat.

"The invention also consists in constructing the covers of two " thicknesses of metal, with a space between the thicknesses, in " order to prevent their too rapid wear. On and round the edge " of the under side of the cover is a a rack, into which a pinion " gears. This pinion is fixed at a convenient part of the stove, " and is fitted with a crank handle, in order to communicate " motion through it to the cover."

[Printed, 6*d*. Drawing]

A.D. 1859, April 27.—N° 1062.

GRANT, Sir Thomas Tassell.—" Ships' cooking apparatus."

The apparatus " consists of a fire-place or furnace combined " with a boiler; the fire-place or furnace is placed at the front of " the boiler, and the two ends or cheeks thereof are formed by " water spaces in connection with the boiler; the bottom of the " ash-pit also is formed in a similar manner. The top of the fire-" place or furnace is formed of metal slabs, which serve as a " hotplate. At the front of the fire-place or furnace are bars, as " in an ordinary grate, and doors are provided by which it may " be closed in when desired. The back or bridge of the fire-place " or furnace is formed by a water space, also in communication "with the boiler. Behind the hollow bridge is a chamber from "which a series of small tubular smoke flues pass to a chamber "at the back of the boiler, in which ovens are placed; this "chamber communicates directly with a chimney placed at the "back of the apparatus. Over the boiler a steam chamber is "formed, it receives steam from the boiler by means of a pipe "ascending from the top of the boiler, and terminating in a "dome formed at the top of the steam chamber. Within the "steam chamber one or more cooking chambers are placed, and "they are supported in such a manner that a space may be left "for the steam all around the said vessel or vessels. Cocks are "provided at the exterior of the apparatus for drawing off the "contents of the cooking vessel or vessels, and also the water "formed by the condensation of the steam from the steam "chamber. On each side of the steam chamber brackets are "fixed to support kettles or vessels, which are supplied with "steam by steam pipes connecting them with the steam chamber, "and these vessels receive smaller vessels in which cooking may "be carried on. A whistle is provided to indicate, should the "supply of water in the boiler be allowed to fall below the proper "level."

[Printed, 1s. 10*d*. Drawings.]

A.D. 1859, May 3.—Nº 1112.

CHAPMAN, Henry.—(*Provisional protection only.*)—"Camp "cooking apparatus."

"The apparatus is composed of three principal parts, which "are intended to contain water at the lower part thereof, except "the bottom of the third or middle compartment, which may "be used for roasting coffee. At or near the division of each of "the aforesaid compartments a dome or other convenient shaped "opening is to be formed, from whence proceed tubes or pipes "passing respectively through the several before-mentioned com"partments in a horizontal direction. The ends of those tubes "which come through the outer casing of the apparatus are "furnished with valves or dampers for opening and closing "entirely or partially the ends of said tubes for regulating the "intensity of the heat in the apparatus. The above-mentioned "compartments are intended to be fitted with shelves, trays, "hooks, strainers, and such like appliances necessary in per"forming the operations of boiling or steaming meat, vegetables,

" and other articles of food. The apparatus should be furnished " with suitable lids, also cocks for drawing off warm water. To " use this apparatus, it is only necessary to place it over two " braziers containing fire."

[Printed, 4*d*. No Drawings.]

A.D. 1859, May 13.—Nº 1201.

VICARS, Thomas, senior, VICARS, Thomas, junior, and ASHMORE, Thomas, and SMITH, James.—" Manufacture of " bread, biscuits, and like articles."

Improvements upon No. 2915, A.D. 1856, and No. 1918, A.D. 1857. Reference is also made to No. 562, A.D. 1854. A machine for preparing the "sponge" is described, similar to that described in No. 1918, A.D. 1857. An upright shaft rotates in a skeleton framework. The shaft is driven by suitable gearing above, and carries on its lower end a series of "prongs or rods," which rotate in a vessel containing the "sponge." When sufficiently mixed, the "sponge" is placed in vessels contained in a larger vessel filled with water of a temperature which varies according to the heat required to produce fermentation.

To the rolling and shaping machine described in the two specifications above mentioned, are added two additional pairs of rollers for rolling the dough intended to form the crust of the bread. A novel description of machinery is also employed to carry the dough from the machine to the oven. An endless belt works over a roller at one end, and a fixed knife-edge at the other, so that it delivers what it carries on to a similar web working in the same way over a roller and knife-edge. This second web delivers to the carriage used for charging the oven. The dough is placed with a cloth under it on trays. These are placed on a table. Loops on the end of the cloth are then connected to loops on the first web. The cloth and dough are then drawn on to the web, the dough is delivered to the second web, and the cloth carried down underneath the web, where it is detached. The second web is suspended from a travelling frame, so that it can be carried forward over the charging carriage. The dough is delivered regularly by drawing back the frame and web, and at the same time advancing the web, so that it delivers on to the carriage.

A portable furnace may be used, and ovens may be built " in " tiers," so that the furnace may be moved from one to the other.

The "travelling oven" described in No. 562, A.D. 1854, may be employed.

[Printed, 2*s.* 6*d.* Drawings.]

A.D. 1859, May 13.—N° 1202. (* *)

BROOMAN, Richard Archibald.—(*A communication from Anthony Bourdin.*)—(*Provisional protection only.*)—"Cooking, " preserving, and drying animal and vegetable substances."

These improvements consist in "cooking, preserving, or drying " meat, fish, vegetables, eggs, tobacco, and other substances by " the direct action of high-pressure steam admitted into a herme- " tically closed vessel, in which the substances to be treated are " placed. The steam enters by a pipe furnished with a cock, fills " the vessel, and when the cooking, preserving, or drying has " been effected, is allowed to issue by another pipe. The pressure " of steam is indicated by a manometer, and may be regulated by " any ordinary means. The meat or other substance under treat- " ment in the apparatus may be suspended or laid on perforated " plates or grids."

[Printed, 4*d.* No Drawings.]

A.D. 1859, May 14.—N° 1211.

COOPER, Thomas, and EVANS, Thomas Jones.—(*Provisional protection only.*)—Oven for baking, drying, etc.

The oven consists of a closed chamber with an arched top. Under the oven is a fire-place, from which flues pass round its sides and over its top. Small passages or flues made of perforated bricks are constructed in the walls of the oven. These passages communicate with the main flue. The oven door is placed "over the furnace." When the oven is used for baking bread, there is a small opening in the arched part, which communicates with the chimney. In this opening is a damper.

[Printed, 4*d.* No Drawings.]

A.D. 1859, May 28.—N° 1320.

GRAVELEY, William Henry.—"Apparatus for purifying and " aërating sea water, parts of which may be employed for cooking " and baking purposes."

"A furnace with the ordinary appliances for cooking, roasting, " and baking" has connected with it a distilling apparatus. The flues from the boilers of the condenser are carried round an oven to utilise the heat. The steam from the boiler on its way to the refrigerator passes through a steam jacket surrounding cooking boilers. The hot-plate has a guard to prevent the cooking vessels from falling. These appear to be the only special points in which the invention refers to the present series.

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1859, May 30.—N° 1338.

CLARK, William.—(*A communication from Frederic Ludewig.*) —(*Provisional protection only.*)—" Manufacture of leaven."

The following is the method of preparing the yeast:—"To
" manufacture about 222 pounds of sweet white yeast, take, 1st,
" about 175 quarts of ordinary beer yeast, 2ndly, about 260 quarts
" of fresh water, and, 3rdly, about 13 pounds of pulverized car-
" bonate of ammonia $(C\,O^2\,Az\,H^3)$. The whole is then worked
" up with a mechanical agitator in a tub, which operation removes
" from the yeast the resins and essential oils produced from the
" hops." "When this operation is completed it is allowed to rest
" about eight hours, care being taken to stir the mass two or three
" times; when this time has expired, the water is withdrawn by
" means of cocks, and the yeast placed on a fine sieve in another
" vat, where it is worked up again with about 440 quarts of fresh
" water; when this is completed it is allowed to rest three or four
" hours, after which time the liquid is withdrawn as before. The
" yeast is then placed in double sacks, and in this state subjected
" to the action of a press, which dries and solidifies the yeast.
" It is then withdrawn from the sacks and spread upon tables,
" and beaten up with or simply sprinkled with about 8 ozs. of
" powdered sugar for every two and a quarter pounds of yeast."

[Printed, 4*d*. No Drawings.]

A.D. 1859, June 10.—N° 1412.

SELLERS, William.—" Ovens for baking bread or other sub-
" stances."

The oven is oblong in form, and longer in its vertical than in its horizontal section. It contains two tiers of cars or receptacles on which the bread, etc. is placed. Each car is mounted on wheels, and has a flange on its rim, so that the cars may rest one above the other, each supported by the one below it. The lowest car of each series is supported on rails attached to the bottom of a framework, which slides vertically in the oven. Each set of cars has a frame supporting it, and the frames are fixed above, each to one end of a vibrating beam, so that each frame has a short up-and-down motion. The oven doors are at the bottom, and there are two, one for feeding and one for discharging. Catches and levers are so arranged that as the frame on the side of the supply door falls, the set of cars do not fall, but are supported. A fresh car is run in on the rails of the frame, and the frame ascends. A similar arrangement at the other door allows the cars which have been round the oven to be removed. A lever at the top pushes each car in turn from the top of the ascending series to the top of the descending series. The vibrating beam is worked by a hydraulic machine, and the fluid preferably employed is oil. The whole mechanism employed is automatic, and the valves of the engine may be worked by clockwork or otherwise, so as to be opened and closed at proper intervals. A slider pushes the cars into and out of the oven, or this may be done by hand. The car coming from the oven is tilted by a tilting frame worked by hydraulic power, so as to discharge its load. The frame then resumes a horizontal position, to enable the car to receive a fresh load. Full description is given by the hydraulic apparatus, and the way in which it is automatically operated.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1859, June 21.—N° 1487.

HOW, Andrew Peddie.—(*Provisional protection only.*)—"Ap-
" paratus for cooking."

"These improvements consist, firstly, in attaching to apparatus,
" for the distillation of fresh from salt water, a donkey engine
" and pump for supplying the same, thus dispensing with hand
" pumps, and overhead cistern usually fitted thereto.

" Secondly, in combining such improved distilling apparatus
" herein described with an ordinary cooking apparatus. In this
" arrangement two furnaces are employed, which may be used
" together or separately. When the former, the products of com-
" bustion from the cooking furnace may be made to pass through
" the furnace of the distilling apparatus, and thus consume the
" smoke from the furnace of the cooking apparatus."

[Printed, 4*d*. No Drawings.]

A.D. 1859, August 15.—N° 1879.

HARRISON, SAMUEL.—" Broiling and roasting apparatus."

The invention "relates to the class of chop broilers and meat " roasters which are usually constructed of sheet or cast iron, and " are heated by the flame of incandescent carburetted hydrogen " gas;" it " consists of an iron frame, having a lid or cover, so " as to reserve the heat or vapours arising from the flame of the " gas, and the frame is made to rest on four legs or feet, two " grooves being attached to the legs or feet to receive a pan or " tray made to receive the fat or gravy issuing from the meat or " any article cooking.

" The inner part of " the apparatus " consists of a main or feeding " tubing having more or less tubings connected thereto, the " tubings having more or less gas burners or jets fixed therein, and " supply tap as may be required." There is also " an iron convex " shell, having more or less points fixed horizontally to an iron " frame or grating over each gas burner or jet, for the purpose " of conducting the fat of the gas burner or jet, and also for the " destroying of the smoke or soot arising from the flame of the " gas."

[Printed, 4*d*. No Drawings.]

A.D. 1859, September 3.—N° 2017.

NIXON, JAMES CHARLES.—" Kitchen ranges."

The oven is at the side of the grate. From the bottom of the grate a flue passes under the oven, up the opposite side, and over its top to a flue at the back. This flue has a damper to close it if needful. Another flue starts from the same point, and passes to the top of the oven, where it joins the first mentioned. At the other side of the grate is a boiler, and over it a hot closet. A flue leads from the grate under the boiler, and up the side of the boiler and closet. This flue has a damper, pivotted so that when it is open it is vertical, and the soot does not rest on it. The closet has a steam jacket, supplied with steam from the boiler. A damper allows the steam to pass into the flue. The steam may be turned into the interior of the closed if needed, to make a steam closet of it. Above the centre of the grate is a " register " flap" inclined upward, and capable of being fixed in any position by a " racked lever " passing through a slot in the flap.

[Printed, 10*d*. Drawing.]

A.D. 1859, September 5.—N° 2027.

TOMELL, Victor.—(*Provisional protection only.*)—"Manufac-" ture of yeast."

The whole specification runs as follows:—

"The object of this invention is to manufacture yeast in such " a manner that it shall keep and be fit for use for a considerable " length of time, and is effected in the following manner:—In " the season when grapes are pressed and the wine cider is put " into casks, on the same day it begins to ferment, and as soon " as the froth which overflows begins to get clear, it is to be " gathered into a wooden bowl, and thinned through a sieve; it " is then to be poured from one bowl to another until it becomes " a complete froth, when it is to be mixed with millet flour to " the consistency of dough and dried, one pound of this compo-" sition making about eight pounds of yeast, as follows:—Place " into a large earthen pot several pounds of the above-named " substance, and dissolve it in boiled barley and hop water, ex-" pressly prepared for that purpose, at the same time add a " portion of millet flour, then let it rise, after which it must be " poured into a trough and made dough of; the mixing of the " dough must not be done by hand, by with a large wooden spoon. " To form this into cakes, take with a small wooden spoon suffi-" cient to make a single cake, which must be rounded with the " hands very hastily, and placed on a form or other suitable place " one after another, then left for some time to rise, after which " they are placed in the fresh air or a current of air until perfectly " dry, when if kept in a dry place they will be fit for use from " fifteen to eighteen minutes after."

[Printed, 4*d*. No Drawings.]

A.D. 1859, September 10.—N° 2070.

PERRY, Thomas Joseph.—(*Provisional protection only.*)—" Hot-air oven."

The object of the invention is to enable a "double oven" to be built round instead of elliptical and with "a core or body of " brickwork" projecting from a dividing wall "with a view of " filling up to a certain extent the empty space within the circle " of vertical pipes." With this view the inventor proposes,—

"To make the walls of the double ovens circular, so that the " iron bends may exert an equal restraining force on every part " of their surface, and to build up each compartment in the

" form of a segment of a circle; the projection of the core beyond " the face of the division wall will thereby be so much reduced " as to prevent the liability of its giving way, and moreover the " face of such projection, which is intended to reverberate the " heat, being built near to, and for a considerable distance parallel " with, the vertical pipes, thus producing a more uniform and " greater reverberation of heat than heretofore in hot-air ovens, " and consequently an economy in fuel." "The syphon or air " pipes which are used are cast vertically, so as to insure the " greatest practical soundness and regularity in thickness."

[Printed, 4*d*. No Drawings.]

A.D. 1859, September 24.—Nº 2165.

NORMANDY, Alphonse René Le Mire.—"Application of " steam for cooking."

The improvements "consist in connecting a boiler under pres- " sure with a chamber or chambers, into which utensils may be " partly or wholly immersed, so that on admitting the steam from " the said boiler into the chamber or chambers round the said " vessels, the food which is put into them may be cooked by it " in such a way that, practically speaking, by means of an in- " strument called a steam trap, no steam is allowed to escape " from the chambers containing the cooking vessels, except it " have been previously condensed, the steam trap allowing nothing " to escape but the water resulting from the condensation of the " steam round the cooking utensils."

The remainder of the Specification refers to a condensing apparatus. The whole apparatus is said to be specially applicable for ships' use.

[Printed, 1*s*. Drawings.]

A.D. 1859, September 28.—Nº 2195.

PHILLIPS, William Henry.—Culinary apparatus.

A portable cooking stove is constructed of an oblong metal box with bars in front. The upper part of the front is made with a lid or flap through which the fire is fed. Behind the upper part of the fire-place is a hollow space with an opening above in which a cooking vessel may be placed. From this a short flue leads which moves on a socket so as to vary the size of the opening. At the bottom of the fire-place is a shelf, on which a dutch oven may stand. Behind is a hook by which the whole apparatus may be hung on the bars of a kitchen range so that the flue discharges up the chimney. The stove may be varied in shape and may be round. A similar stove may also be made double, with a space between in which chops, etc. may be cooked. These stoves are intended to burn wood or coal, but a modification is shown in which volatilised oil may be burnt. The oil is supplied in a vessel at the side of the stove, heat is applied and the oil volatilised, the gas passes through a perforated plate and is lighted.

A portable oven is described. It consists of a metal vessel with an outer casing which forms an air-space round the oven in which the products of combustion circulate. A flue is attached. There is a shelf in the oven and a slide upon it, the front of which forms the oven door.

[Printed, 10*d*. Drawing.]

A.D. 1859, October 13.—N° 2338.

VICARS, Thomas, senior, VICARS, Thomas, junior, ASHMORE, Thomas, and SMITH, James.—Machinery for making bread, biscuits, etc.

The first part of the invention relates to improvements upon No. 1201, A.D. 1859. Sliding tables are used instead of an endless belt to convey the dough under the stampers and rollers. The dough is placed on a tray which has ledges at the sides, one of which ledges is moveable. Between the dough and the tray is placed a cloth with loops at the sides as described in the Specification of No. 1201, A.D. 1859. The tray is moved by means of a table carried forward by racks underneath, or two such tables may be used, and the tray moved from one to the other.

An improved oven is also described. Metal carriages or trays are drawn through the oven on rails by means of endless chains working over pulleys in the oven. There are doors at each end of the oven, and when the carriage and its load reach the discharge door they are raised by a hydraulic lift to the level of a heated chamber above the oven, and return through it. The carriages may have covers which render them steam-tight. The oven may be built in three compartments with steam-tight door of communication. These doors can be opened from outside.

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1859, October 14.—N° 2340.

CONSCIENCE, Jean François.—(*Provisional protection only.*) —“ Making bread.”

30 per cent. of bran is boiled with 70 per cent. of water for 20 or 25 minutes. The resulting liquid is to be mixed with flour and kneaded in the usual way. A special boiler for the purpose is described. It is of cast iron or copper tinned, and cylindrical in shape. It "will be supported by a slotted upright piece of " iron on each side with two screws which will keep it suspended " over the fire on a grate adapted to these upright pieces, which " grate can be raised or lowered by a screw moved by a wheel or " other contrivance. Two small handles are also adapted to these " upright pieces for keeping the boiler in an inclined position for " emptying the residue of the process. A cross bar will be fixed " to the upright pieces, in the middle of which will be placed a " screw to be moved by a wheel which will press upon a wooden " cover, and force the liquor to come out by a tube adapted at " the side close to the bottom, a fine wire sieve being placed " across the tube. A sheet iron cover for the fire can be used " for keeping back the heat when emptying the boiler of its " contents. Before pressing the liquor the grate should be " raised, so that this cover may reach the bottom of the boiler, to " prevent it receiving any strain from the pressure of the screw."

[Printed, 4*d*. No Drawings.]

A.D. 1859, October 26.—N° 2450.

ARMOUR, John.—Measuring solid and liquid matters.

At the bottom of a hopper is a receptacle divided into compartments. The top and bottom of this vessel are fitted to revolve on a central axle. They are perforated with apertures corresponding in size to the compartments and so arranged that when each compartment is open above it is closed below, and vice versa. By this means the matter to be divided is delivered in measured portions. The specification shows the invention as applied to a pug-mill, and in this there are two measuring apparatus, one of which delivers clay and the other water. It is stated that a similar arrangement may be applied to the manufacture of dough.

[Printed, 10*d*. Drawing.]

A.D. 1859, October 29.—N° 2472.

MASCORD, Joseph, BONNER, Joseph, and VINER, Frederick.—(*Provisional protection only.*)—Cutting up and pulping animal and vegetable substances.

The apparatus is chiefly intended for cutting roots for food for cattle, but it is also applicable for mincing meat, suet, etc. There is a slicing and a pulping apparatus, and they may work separately or together. In the slicing apparatus it is preferred to "mount the slicing knives on the end of a horizontal cylinder "or barrel, around the periphery of which are placed the knives "for cutting up the roots into square or oblong pieces. The "pulping apparatus consists of a rotating barrel armed with "knives or studs arranged in any convenient manner thereon, "and surrounded by or enclosed within a cylindrical or other "suitably shaped casing also provided with fixed knives or studs "arranged so as to work between the studs or knives of the "rotating barrel. An opening is made on the upper side of this "casing for the purpose of admitting the substance to be operated upon to the rotating barrel. To this opening a hopper "to supply the roots or other substances is adapted. Another "opening is made on the under side of the casing in order to "allow the reduced or pulpy mass to escape from the working "barrel. This opening may be partly or wholly covered by "a moveable grating or other analogous contrivance, which "will prevent any substance from passing through until it "has been reduced to the required dimension. For some purposes, such as for cutting or mincing animal substances, or for "cutting up stringy or fibrous roots or vegetable substances," "the operation is much facilitated by making use of a drawing "cut, and this object is effected by the use of rotating disc knives, "which are made to rotate at greater speed than the revolving "barrel. These rotating disc knives are employed in place of "the fixed knives or studs of the cylindrical casing, and will be "found to operate with a less expenditure of power than is "required with the fixed knives; clearing pins or studs are "adapted to pass between the rotating discs in order to push out "any pieces that may enter between the knives."

[Printed, 4*d*. No Drawings.]

A.D. 1859, November 7.—N° 2529.

CLARKE, John Algernon.—"Extracting seeds or stones from "fruit."

An instrument is described resembling a pair of scissors in appearance. Between the finger holes and the joint there are two flat plates, one on each lever. The fruit is flattened between these. The outer ends of the levers are formed into corresponding dies. The flattened fruit is placed between them, and the stone driven out through the hollow lower one by pressure from the upper one.

[Printed, 6*d*. Drawing.]

A.D. 1859, November 14.—N° 2574. (* *)

MENNONS, Marc Antoine François.—(*A communication from Henri Auguste D'Arbel, senr.*)—" Apparatuses for the con-" centration, distribution, and application of the heat evolved " by gas, oil, and other lamps."

The invention consists in applying the heat of lamps "to " general heating and culinary purposes," without interfering with the light produced. The lamp (" one or several ") stands on a sole plate, from which rise up standards supporting an " outer case or envelope," and the case is composed of a " furnace or upper section," and a "heat chamber" below. The upper section has a moveable lid which is " pierced in its circumference " with orifices closed at will by any suitable means." The lamp is so situate that the chimney "may penetrate to about one " inch in the heat chamber," and its light may be increased " by " a coating of white " applied to the standards or by a moveable reflector.

"To condense and preserve or distribute" the heat, "a number " of accessories are fitted to the interior " of the envelope; the first of these is "a second or inner coffer" placed above the heat chamber, " at a distance of about half an inch on each side from " the inner surface " of the envelope, and "about one-half or " two-thirds of its height;" it has a lid pierced with holes, which may be closed by slides.

The products of combustion are carried off by (1) a " small " chimney," which is "a bottomless case," in the lower part of the chamber, (2) a " large chimney," which is " a case similar to the " other, but of less height, and provided with a truncated cone, " surmounted by a smaller cone reversed," (3) a smoke consumer " composed of two or three superposed cones," "joined to each " other at the apex, and suspended below the centre of the inner " coffer by means of a moveable cross piece resting on the brackets " at each side."

"The moveable pieces of the inner coffer are of two kinds; the " first series act simply as heat concentrators; the second collect

" the heat, and serve at the same time as domestic and culinary " utensils," such as foot warmers, hot water reservoirs, ovens, boilers, digesters, etc.; both kinds are described.

One drawing shows " a miniature oven or furnace heated by an " ordinary Argand lamp, on which it is supported by metallic rods " terminated by a screw collar or clamp;" another, an oven or furnace " mounted on brackets or suspended over a gas burner or " lamp;" a third, " a stove, the upper part of which contains the " heat coffers and other accessories acted on by two or more " lamps," which may be hidden " by screens, transparent or " otherwise;" and a fourth, " an ornamental stove with the same " internal arrangement."

[Printed, 10*d*. Drawing.]

A.D. 1859, December 1.—N° 2722.

NEWTON, William Edward.—(*A communication from Edwin Pear Monroe.*)—" Apparatus for beating eggs."

Two beaters or frames made of looped wire revolve in opposite directions, one within the other. They are mounted on a central shaft. The outer one has a bevil wheel at top through the axis of which passes the shaft to which the inner frame is fixed. At the top of this is a second bevil wheel, and there is sufficient space between the two to allow of a vertical wheel gearing into both, one above and one below. This wheel is turned by a handle, and thus gives opposite motions to the two frames. The whole is mounted on an arm which can be screwed to the edge of a table.

[Printed, 6*d*. Drawing.]

A.D. 1859, December 1.—N° 2725. (* *)

JOHNSON, John Henry. — (*A communication from John McCormick and Edward Pincus.*)—(*Provisional protection only.*)— " Improvements in apparatus for preserving and cooking food."

A pan or vessel is constructed " composed of an inner and an " outer casing with a narrow steam-tight water space intervening " between such casings at the bottom and sides of the vessel. " A close fitting lid or cover is also fitted on to the vessel; this " lid or cover being also made double with an enclosed layer of " felt or other good non-conductor of heat. The inner casing of " the vessel may be made either of metal or of glass or glazed " earthenware, but the outer casing is always made of thin sheet " metal. A bent syphon pipe is connected with the lower part

" of the outer casing, so as to open into the water space, and " the bend of this pipe is carried up above the level of the top of " the pan, so as to prevent the water running out again. A " valve is fitted to the mouth or entrance of the pipe and held " pressed thereto by a helical spring made adjustable by set nuts " so as to exert a greater or less pressure upon the valve, according " to the pressure in the water space between the casings. The " water is introduced into the space between the casings by " turning the vessel on one side and then inserting a funnel or " filler into the mouth of the pipe, and pouring in the water until " it reaches the bend, when the water space will be quite full. " The pan or vessel is now ready for use, and may be adapted " either to a cooking stove or used with an ordinary open fire."

[Printed, 4*d*. No Drawings.]

A.D. 1859, December 3.—N° 2740.

ANDERSON, JAMES, and BRADSHAW, JAMES.—" Improve" ments in the construction of bakers' ovens, for the purpose of " consuming smoke."

An additional air flue is provided which admits air direct into the chimney without its passing into the oven or furnace. This flue is closed after firing, till the coals are well alight, when it is opened. If there are two furnaces, and one chimney, there must be an air-flue for each furnace. Or a series of perforated plates are arranged in the chimney at suitable distances apart, the lowest " at the root of the main flue." Above the plates is a perforated " box " with a sliding damper, to regulate the draught and admit air.

[Printed, 8*d*. Drawing.]

A.D. 1859, December 7.—N° 2775.

DE CHANGY, CHARLES CONSTANT SIMONET. — Making bread and preparing dough.

" Diastase," obtained " by infusing in water malted barley," is mixed with dough, for the purpose of dissolving the gluten. The utensils employed are a tub with a perforated false bottom, removeable for cleaning purposes, a tap at bottom, and a cover; a boiler, and an open tub of capacity equal to that of both the other vessels together. For making 220 lbs. of flour into bread, 44 pints of water are warmed in the boiler to 65° Cent. This is poured upon 4½ lbs. of crushed malted barley in the double-bottomed tub, mixed up with a stirrer and the whole left to macerate for an hour. The same amount of water is then heated to 95° Cent. and poured on the infusion. It is left to macerate for 3 hours, after which the water is drawn off by the tap into the open tub. The same amount of water is heated to 80° Cent., and poured on the barley; after an hour, this is drawn off and added to the former infusion. When the infusion is about 25° or 30°, it is used for making dough. Any liquor remaining in the grain is to be pressed out.

The structure of the infusing tub may be modified by fixing to the discharge tap a pipe which is bent upwards along the side of the tube, and terminates in a funnel. Through this the water is supplied, so that it rises through the grain from below.

To make a "concentrated liquor," 176 pints of water are heated to 60° Cent.; 88 pints of this water are poured on 44 lbs. of barley. The tub is then covered and enclosed in a "padded "case" to prevent waste of heat. The remaining 88 pints of water are heated to 90° and poured in. The mixture is allowed to macerate for 4 hours, and the liquid drawn off. The grain is pressed in a press to extract all the liquor.

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1859, December 8.—N° 2785.

PROSSER, William, and HOGG, John.—"Cooking apparatus, particularly suitable for military purposes."

"A suitable boiler is arranged for the desired quantity of meat "or soup required. This boiler is provided with an inner bottom "or lifter, so that the meat may be raised from the interior by "means of a portable crank or derrick, and swung round upon a "platform for the more easy distribution thereof. A steamer or "cullender is added, in which potatoes may be cooked at the same "time. A commodious oven or ovens are in close proximity to the "boiler, for baking meat, bread, or pastry, over which are per-"forations for stew kettles, frying, gravy pans, and the like, also "a steam chest for cooking any kind of vegetables, puddings, "rice, fish, or other articles to which steam is applicable. A "second boiler is added, in which to make coffee, cocoa, &c., "together with a reverse boiler for making tea, grog, &c., or to "supply the other boilers. Recesses or hot-air chambers are "arranged beneath the apparatus, for the purposes of drying fuel

" or other drying purposes, also lockers or store boxes for various " purposes." "The fire may be lessened by metal slides, which " act as partitions, and confine the fire." "The apparatus is to " be made of any suitable size," "and mounted on wheels and " springs," "so that, when an army is upon the march, the cook- " ing operations can be proceeded with." "A funnel or smoke " pipe is arranged upon the locomotive engine principle."

[Printed, 4*d*. No Drawings.]

A.D. 1859, December 19.—Nº 2885.

BATHGATE, Andrew, and WILSON, John Hays.—" Appa- " ratus for distilling water and cooking on board ship."

The apparatus "consists of a parallelo-gramical or other suit- " ably shaped metallic chest or chamber, having a small enclosed " fire-place and ash-pit above the centre of its length, and a baking " oven at one side, with space left between the sides of the oven " and the outer casing, that the heat may be circulated around the " sides thereof, and which may be regulated by a damper or " dampers. The top of the outer casing immediately above the " fire-place, and the flue above the oven, is perforated by suitably " shaped holes to receive the bottoms of the cooking vessels, the " said openings being closed by suitable covers or lids when not in " use." A vertical steam boiler is placed at the opposite side of the fire to the oven, and connected to condensing apparatus.

[Printed, 8*d*. Drawing.]

A.D. 1859, December 20.—Nº 2896.

WILLCOCK, Joseph.—(*A communication from Albert W. Hale.*) —" Machine for cutting or mincing meat, vegetables, &c."

Two spirally grooved cylinders revolve within a case similarily grooved. The grooves in the cylinders decrease in depth towards the end to which the spirals convey the minced material. The cylinders have their axes horizontal and parallel. They are placed in contact, so that when one is revolved by a handle it drives the other. A knife blade is fixed with its edges along the line of contact. The casing is made to open in two, so as to allow access to the interior. At one end there is a funnel for feeding the materials into the machine. These are cut by the action of the cylinders carrying them against the knife edge and carried along the spirals until the pieces are small enough to pass along the shallowest parts of the grooves. They are discharged through a funnel, on to which a pipe may be fixed for "stuffing" in the usual way. By removing the knife, the apparatus may be used for "stuffing" only. In a modification, one cylinder alone may be employed, with a knife blade arranged tangentially to it.

[Printed, 8*d*. Drawing.]

A.D. 1859, December 30.—N° 2984.

SMITH, WILLIAM.—(*Provisional protection only.*)—"Chimney "linings."

"According to this invention each chimney has fitted into its "bottom or lower end, immediately above the part where the top "edge of the grate joins up to the lintel brace or upper portion "of the mantel-piece, a fire-clay lining piece, formed with a wide "oblong throat to embrace the space over the fire-grate. The "lower edge of this lining piece, or 'oncome,' as it is technically "termed, is formed with a horizontal flange all round, and the "flange on the front edge is thus made to answer as the lintel of "the chimney piece." "The wide throat of the lining or "'oncome' is contracted upwards to the necessary area of the "lining, and the latter is then continued up by fitting in sections "of lining of the proper size, the first section of the lining having "bottom edge flanges for building into the masonry, thus forming "a support, and preventing undue downward pressure upon "the 'oncome.' As a back smoke preventive a metal door is "fitted in above the 'oncome,' and so as to work in the interior "of the lining. This door has an open cast-iron frame pieces "fitted into the lining structure and formed with a groove and "checking piece all round for similar groove and checking pieces "upon the door to fit into. This secures a most accurate fit and "prevents all down draughts.

"In the case of kitchen ranges, where flues of various kinds "have to be provided for, and where the open space above the "range is of considerable extent, 'oncomes' of a generally similar "form are used for the ordinary fire draught; but in addition to "this, gathering flues are formed to convey the draught currents "of the oven, boiler, and hot-plate flues up outside the main "'oncome.' Suitable lateral apertures are formed in the vent "lining above the 'oncome' to receive the currents thus taken "up independently of the main 'oncome.'"

[Printed, 4*d*. No Drawings.]

1860.

A.D. 1860, January 4.—N° 27.

GAMMON, Charles.—(*Provisional protection only.*)—" Im-" proved churn."

The invention "consists of a cylindrical vessel, within which" is " mounted a vertical spindle or shaft, having fixed to it 3, 4, or " more vanes of a gridiron form; upon a prolongation of the spindle " extending beyond the cover of the cylinder is mounted a pinion " which gears into a segmental rack; a vibrating lever turning on a " centre is fixed to that last-mentioned rack, so that when raised " or lowered the rack is made to vibrate with it, and acting upon " the pinion gives to the spindle and the vanes an oscillatory reci-" procating motion, which produces the required effect on the " article to be operated upon. If the apparatus be made use of " for beating or churning eggs the pinion and the rack may " be omitted, the spindle being carried straight up, its extremity " forming a handle; the oscillatory motion is then obtained by " rolling or turning the handle between the palms of the hands."

[Printed, 4*d*. No Drawings.]

A.D. 1860, February 14.—N° 405.

DAVIS, William.—" Manufacture of bread."

A small quantity of the flour is made into dough with yeast in the ordinary way. The remainder is made into dough in a kneading machine with some materials that generate carbonic acid gas, hydrocarbonic acid and carbonate of soda being preferred. The small portion of fermented dough is then introduced, and the whole kneaded together. By this means less yeast is used, and a greater amount of bread may be produced from the same quantity of flour.

A kneading machine is described. Within a horizontal cylinder mounted on gudgeons a shaft rotates. The cylinder and shaft rotate in opposite directions. To the sides of the cylinder are fixed arms fitted with tines or forks, and on the shaft are fixed similar arms. By the revolution of these the dough is kneaded.

An apparatus for shaping the dough into loaves is employed. An ordinary mould, with two parts hinged together, is fitted with a funnel by which it is filled with dough, a slide worked by a lever, cuts off the dough when the mould is full. A piston may force the dough in. Moulds of this sort may be attached to the kneading trough above described, or may be used separately. They may be worked by hand or otherwise.

[Printed, 10*d*. Drawing.]

A.D. 1860, March 16.—N° 695.

WHITE, George. — (*A communication from Johann Georg Leuchs.*)—Substitute for albumen.

Albumen is prepared from the eggs or other albuminous parts of frogs, fish, etc., and from various "gelatinous animals." "The "bloody, fleshy, or cuticular parts" are cleared away, and the remainder crushed and pressed until the albumen is extracted. Water "or other suitable menstrum" may be added to assist the process. The liquid is put to stand, and the "supernatent, clear "liquid part" poured off from the sediment. The albumen may be used in that state or further dried. It may be employed "for making pastry or for other culinary purposes."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 22.—N° 741.

TURNER, William.—"Manufacturing bread."

The kneading trough is open at the top and has above it a feeder with a perforated bottom through which the flour is forced by revolving brushes. A frame is fitted to revolve within the trough. It consists of two iron bars bent at their ends so as to form, when placed together, a parallelogram, within which are fixed arms of various forms. These bars are slotted at their ends, to receive a square bar, on which they revolve. This bar is moveable, so that when it is taken out the whole frame may be removed by means of a rack and pinion which raises it clear of the trough. It is revolved by suitable gearing.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1860, April 24.—N° 1030.

NEWTON, Alfred Vincent.—(*A communication from George Alexander New.*)—(*Provisional protection only.*)—"Ships' stove."

The object of the invention is "to secure the perpendicularity "of heating and cooking stoves" on shipboard. "It is pro-"posed to make the flue the means of suspending the stove, and "to have but one point of suspension. The flue by preference

" branches from the stove, at opposite sides thereof, and takes a " semi-circular form. At its upper part the flue is provided with " a semi-spherical shell, which fits into a spherical socket formed " of two flanged cup pieces secured together, thereby constituting " a kind of ball-and-socket-joint. The socket is firmly attached " to the deck beams or other fixed part of the vessel, and forms a " continuation of the flue. From the upper or inverted cup of " the saucer a cylindrical flange projects to receive the smoke pipe, " which leads off the gases of combustion from the stove."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 14.—N° 1187.

JONES, Edward Trygarn, and OWEN, Henry.—(*Provisional protection only.*)—Roasting jacks.

"This invention has for its object improvements in roasting " jacks. For these purposes 'motion' is given to an axis by the " gravitation of a weight attached to a cord or chain, which is " wound on a barrel on the axis, the barrel being arranged to turn " on the axis in one direction, but not in the other. The axis, by " an endless chain or cord, or by gearing, gives motion to a spit " or spits or apparatus by which the articles to be roasted are " carried. On the axis is also mounted a cylindrical or other " formed vessel, divided into compartments radially. Each par- " tition which divides the vessel into compartments is formed " with a passage to admit of water or other fluid contained in the " vessel flowing from one compartment to another; and provision " is made for regulating the flow of fluid through such passages, " or the requisite regulation may be obtained by other arrange- " ments. By these means the fall of the weight, and consequently " the speed of rotation of the axis, may be regulated, or in place " of using a weight a spring may be employed."

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 24.—N° 1285.

HEIGHWAY, Richard Husband.—(*Provisional protection only.*)—" Cooking apparatus."

The invention "has reference to an improved cooking appara- " tus for cooking meat, fruit, vegetables, or otherwise, whereby " the nutritious and digestible qualities of the same are more " effectually preserved than hitherto, and consists in a suitable " vessel or chamber containing the food to be operated upon

" being placed within an outer case or receptacle charged with " boiling water, steam, or hydrocaloric, lids or covers being em- " ployed in either case for retaining the essential qualities of " the food, and preventing the entrance of water or steam to " the same, as also facilitating the process of cooking."

[Printed, 4*d*. No Drawings.]

A.D. 1860, June 7.—N° 1408.

WALLER, George Arthur.—"Apparatus for filtering and " solidifying."

Improvements on N° 290, A.D. 1859.

A filtering cylinder is made of uprights rising from a metal base, supporting a ring above and having inside them a series of rings or coils of wire extending from top to bottom of the uprights. The space between each pair of coils is about one-eighth of an inch. A metal cover secured by clips is employed. A circular brush, carried by a rod, works up and down the cylinder to clean it. A tube of fabric fits inside the cylinder and is secured by rings at top and bottom. A short "curtain" may be attached to the cover, so as to fall inside the cylinder and keep the joint tight. The liquid to be strained is forced through the filtering surface by a plunger, or by a waterproof bag within the cylinder, into which water can be forced. By the use of this bag, barm can be solidified by pressure against the sides of the cylinder. The cover may be perforated and used as a filtering surface. Instead of a brush, a scraper may be used which is made to travel round the cylinder inside by gearing. Wire network may be substituted for the fabric.

[Printed, 10*d*. Drawing.]

A.D. 1860, June 13.—N° 1449.

WESTON, William, and PRICE, Benjamin.—"Ovens for " baking."

Ovens are made with a furnace at the side from which flues extend ever the whole lower surface of the oven. These flues then pass up along the sides and over the top to the chimney. A passage under the bottom flues gives access to them and to the furnace. No fire is used inside the oven. A boiler may be placed over the furnace. Dampers are fixed in suitable positions in the flues.

[Printed, 10*d*. Drawing.]

A.D. 1860, June 16.—Nº 1470.

DEANE, Edward, and MARSH, Willougby Digby.—"Kitchen ranges."

A kitchen range is made with two separate fire-places side by side, one smaller than the other. They are divided by a projecting portion of a boiler which runs behind the two grates. At the opposite side of each grate is an oven surrounded by flues from the nearest grate, which pass to the chimney at a level below the fires. Both grates may be used at once, or one only. Instead of there being one boiler extending behind both grates, two boilers, one behind each grate, may be employed. There are hot plates as usual over each grate and oven.

[Printed, 6*d*. Drawing.]

A.D. 1860, June 18.—Nº 1479.

DRESSEL, Robert, and FIGGE, Augustus.—(*Provisional protection only.*)—"Manufacture of yeast."

The whole Specification is thus given :—

"To make 30 pounds of fine flavoured dry yeast from the "bitter yeast, the result of porter and ale brewing, we take about "30 quarts of the above yeast, put it into a tube, and add 6 lbs. "of soda dissolved in a suitable quantity of fresh water, after this "beat up the mixture and stir it well, and subsequently let it "stand to settle, draw off the water and add a little potash, fil "the tub again with fresh water, stir and beat it well, and allow "it to settle, after it has settled draw off the water and put the "substance into closely woven linen bags, which must be tightly "and well tied. We now place these bags under a press, when "the water is pressed out the yeast is fit for use. If it is to be "kept for any length of time, this yeast must be dried in the "open air and stired in suitable vessels."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 7.—Nº 1642. (* *)

SNUGGS, Everett Austin, and SNUGGS, John.—(*Provisional protection only.*)—"Saucepans, stewpans, pails, and other "articles of a similar character for domestic use."

"Instead of making such articles entirely of tin, as at present, "it is proposed to make the whole thereof, except such portions "as after-mentioned, of tin, and to make the bottom of all such

" articles, and also the flange or tongue of the lid of such of " them as have lids," "of copper, such copper to be tinned on " both sides, or either side, or not tinned," "and to be fastened " by means of soldering, welting, or brazing, the welt to be made " either inside or outside of the vessel," "and the seam or joint " to be made at any distance from the bottom to the top surface " of any article."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 9.—N° 1653.

NEWTON, ALFRED VINCENT.—(*A communication from Paul Plisson.*)—(*Provisional protection only.*)—" Portable ovens."

"The oven consists of a slab of fire-clay, which forms the floor, " and a dome or cover of the same material, which, when applied " to the slab, forms a closed heating chamber. Both the slab " and the dome are bound with metal bands to give the same " strength, and facilitate the attachment of a suspending handle " to the dome for lifting it off the slab, and of a second handle to " the slab for suspending the oven from a pot-hanger in a " chimney or from any other suitable support. In order to heat " this oven the dome is raised a little above the slab, and lighted " wood is laid on the slab. When this has been allowed to burn " for a sufficient time it is removed, and the dome is lowered on " to the floor of the oven, and retained there for a short time to " equalize the heat; it is then again lifted, and the food to be " cooked being placed on the floor of the oven, the dome or cover " is dropped over it. In a short time the heat retained by the " thickness of fire-clay will produce the effect required on the " enclosed food. For military purposes it is proposed to con- " struct the oven of a double casing of thin metal, the space " between which is to be filled with sand for the purpose of " retaining the heat. When coals are used to heat the oven, it " may be desirable to make a drop hole in the dome, which hole " is to be closed by a valve or stopper. By its use the progress " of the cooking may be also ascertained from time to time."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 14.—N° 1707.

CHOLLET, MAXIMILIAN LOUIS JOSEPH.—(*Provisional protection only.*)—" Solid alimentary compound for making soup, " seasoning meats, made dishes, and vegetables."

"This compound is made by mixing certain ingredients "together, namely, wheat or other flour with fatty substances, "such as oil, beef fat, and other like substances. The following "kinds are used in preference to others, namely, butter, lard, "mutton fat, veal and beef fats. These substances or one or "any part or mixture of them, are placed in a pan with a "certain amount of flour and boiled together. To make it more "palatable, some garlic, echalotte, or other like vegetable or "substance may be added according to taste, to which may also "be added salt, pepper, and other like condiments. A compound thus made is passed through a sieve in any suitable "manner, and run into moulds, or it may be put in tin or other "metal boxes, and hermetically sealed when required for long "preservation."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 17.—Nº 1728.

SEYDE, Francis Charles.—"Mechanism for pulping, triturating, and comminuting for culinary and other purposes."

The apparatus is intended for pulping materials already finely minced. To the bottom of a hopper is attached a circular sieve or drum with solid ends. It is made of wire tinned after being woven. It is fixed with its axis horizontal. Within this sieve revolves a solid drum with corrugated sides of size sufficient to allow but a small space between its surface and the inner surface of the sieve. The materials are carried down between the drum and the sieve, and rubbed through the sieve. A receptacle below receives the sifted matter. Scrapers are attached to clear the drum, and a presser is used to drive the material acted upon down from the hopper. Motion is given by a handle in the axis of the drum.

[Printed, 6*d*. Drawing.]

A.D. 1860, July 23.—Nº 1775. (* *)

HEWENS, Richard.—"Kitchen ranges."

The invention "consists in applying to kitchen ranges and to "stoves in general a grate bottom capable of being elevated "above the level of the ordinary bottom, which is accomplished "by providing an additional moveable lifting bottom, fitted on "its under side with a vertical rack, which can be elevated by means of a handle working a pinion in the ordinary manner, so that the fuel in the grate can be regulated in depth as required."

[Printed, 6*d*. Drawing.]

A.D. 1860, July 23.—N° 1781.

SULLIVAN, JOHN WELLS.—(*A communication from Charles Sullivan and William Francis Hyatt.*)—"Washing and churning."

"The chief object of this invention is to provide an economical and efficient arrangement of apparatus for washing clothes, but the same arrangement may also be applied under obvious modifications (principally of size and material) to the mixing of various liquid substances, to the beating up of eggs, and other like operations. The apparatus when constructed as a washing machine consists mainly of an outer and inner cylinder, mounted concentrically on a horizontal shaft that has its bearings in a trough or box. The outer cylinder, which it is preferred to make of galvanized iron, has dashers of wood fastened on its inner periphery, and the inner cylinder is furnished with similar dashers on its outer periphery. The outer cylinder is mounted loosely on the horizontal shaft, and it is driven in an opposite direction to the rotation of the inner cylinder by an arrangement of bevil gearing through a crank handle applied to the shaft.

"The machine may also be constructed by placing the cylinders upon a frame in an upright instead of a horizontal, thus dispensing with the trough or box, the rotating in opposite directions being obtained by placing the crank handle at the of the frame."

When the apparatus is made on a small scale, suitable for basting eggs, it is "set up vertically in a suitable frame." An opening is provided in the top end of the cylinder for introducing "the yolks. The "central beaters may form a cylindrical grid," instead of being carried by a solid cylinder.

[Printed, 8*d*. Drawing.]

A.D. 1860, July 27.—N° 1820.

BISHOP, JAMES.—(*Provisional protection only.*)—Kitchen ranges and cooking vessels.

"This invention consists in constructing a kitchen range or
" stove with a boiler, with tubes or passages through the same
" communicating with the fire or source of heat, and conveying
" the heat through the boiler, so as to get up the heat and
" boil the water or liquid contained therein with greater speed
" and certainty. This boiler may likewise be provided with
" outside tubes, half tubes, or heat passages, but so placed that
" the heat may circulate through the same. These kitchen
" ranges are likewise provided " " with ovens, which have similar
" tubes or passages to those described passing around or through
" them." They " are constructed also with the means of con-
" tracting the fire space " " which consists in the adoption of
" slides or cheek pieces which are, when used, to be dropped or
" fitted into and withdrawn from grooves provided in the back
" of and the front bars of the fire space." There is " provision
" for supporting the kettles, saucepans, pots, or other utensils
" without resting on the top of the fuel," and upon this the
vessels may be placed, or " upon a hanger attached to this trivet,
" so as to descend closer to the top of the fire."

These fire tubes may be applied to "kettles, pots, saucepans,
" and utensils or apparatus of similar character, passing them
" through and outside, or outside such utensils."

[Printed, 4*d*. No Drawings.]

A.D. 1860, July 27.—N° 1826.

TERRILL, Samuel.—(*Letters Patent void for want of Final Specification*).—" Open air cooking apparatus."

The inventor says:—

" I place the fire at the lower and front part, and the oven at
" the upper and back part of the apparatus. I form a flue over
" the oven by means of a plate of sheet iron, and I protect the
" bottom of the oven by means of another sheet of iron. A set
" of hotplates is placed over the fire, and others over the oven.
" I also form a flue between the fire-place and the oven by means
" of a partition plate, and another flue between the oven and the
" back of the apparatus; these two flues communicate with each
" other both above and below the oven. I place a boiler or
" fountain at each side of the fire-place, in such manner that it
" may be drawn out from the fire when the water is not required
" to boil. I form compartments for lime round the lower part

" of the oven flues, and also at the back of the apparatus, and at " the side opposite the oven door; and I place a hot closet " beneath the bottom flue. A ventilator and a hinge blower " occupy the upper part of the apparatus above the fire-place. A " door is provided for cleansing the flues. The products of combustion pass from the fire partly into the flue formed between " the oven and the partition plate, and partly beneath the iron " plate which protects the bottom of the oven, into the flue at " the back of the apparatus, and they meet in the flue formed by " the top of the oven and the sheet-iron plate, and pass thence " through an opening in said sheet-iron plate to the chimney. " A boiler or cooking vessel is inserted in the hotplate over this " opening, so that as the heated gases rush through the said " opening they may impinge upon the bottom of the boiler or " cooking apparatus. I place dampers in the upper oven flue " and the chimney. There are doors to the flues, which should " only be kept open when an open fire is required. In some " cases I prefer to place the chimney on the side of the apparatus, thereby affording additional space for cooking on the " top."

[Printed, 4*d*. No Drawings.]

A.D. 1860, August 9.—N° 1931. (* *)

NEUMANN, Anton.—(*A communication from Franz Xavier Kientzle.*)—(*Provisional protection only.*)—Fastening of the doors of stoves, kitchen ranges, etc.

" According to this invention it is proposed to apply a sliding " rod or bar to each side of edge of a door or lid, such sliding " rods or bars forming either the hinge piece of the door or lid, or " the fastening of the same, according to the side on which the " door or lid is opened. A handle is provided on each side of the " door, by partially turning either of which the sliding rod corresponding therewith may be disconnected from the hinge " sockets, and the door or lid consequently opened on that side, " whilst the opposite bar or rod remaining engaged in the hinge " sockets serves as the hinge upon which the door or lid turns."

[Printed, 4*d*. No Drawings.]

A.D. 1860, August 10.—N° 1939.

SUMMERSCALES, John.—(*Provisional protection only.*)—Dough-kneading and other machines.

The invention "as applicable to churns, consists of a vessel "enclosing a compound agitator which can be worked by three, "four, or more wheels at pleasure, having only one central shaft, "and may be turned either by hand or other motive power. The "compound agitator consists of two drums or cross bars furnished "with radial arms projecting inwards and keyed upon the central "shaft, which turns in one direction, whilst a tubular shaft or "long hollow boss furnished with radial arms or beaters projecting "outwards, and working within or between the first-named "radial arms, turns in the opposite direction."

"Another modification of the same arrangement may be used "as a root washer or scraper by attaching to the barrels or "beaters, or to both, brushes or graters, or both brushes and "graters, as may be desired.

Also, "as regards mixing machines for size, colors, seeds, "paints, or liquids, and for any dry material whatever, a further "modification of the same arrangement is equally applicable, and "by a suitable configuration of beaters or knives, it may be also "adapted as a double-kneading machine."

[Printed, 4*d*. No Drawings.]

A.D. 1860, August 23.—N° 2033.

LACROISADE, Jean Hector Chambon.—Apparatus for heating irons and cooking.

The apparatus is intended principally for heating irons, and varies in shape according to the sort of irons to be heated. There is an inner and outer casing, and the irons are held in the space between the two. A moveable fire-grate is supported on projections within the interior casing. From the top or upper part projects a tube or chimney which may be made in lengths. Round the top is a hollow rim containing water. A gridiron or other cooking apparatus may be placed on the top of the fire-grate.

[Printed, 1*s*. Drawings.]

A.D. 1860, August 27.—N° 2069.

NEWTON, Alfred Vincent.—(*A communication from Iverson Wilson Knapp*).—"Bakers' ovens."

A shaft, on which are keyed two discs, passes across the oven. Between these two discs trays are hung on which the bread, etc. is placed. The shaft is rotated by gearing outside the oven, and the trays are then carried round but always in a horizontal position. At the bottom of the oven on one side is a shoot, and over it are guides which tilt the trays in succession, 'and cause them to deliver the bread into the shoot. Beside the shoot is a door through which the emptied trays are reloaded.

Flues lead from the furnace below, beside, and behind the oven into a flue along the top. In the front of this flue is a valve opening into the oven. There is also a flue leading direct from the fire to the chimney. This flue has a damper, so that when much smoke is produced it may be drawn off to the chimney, but when the fire is clear, the heated air may be admitted to the oven.

[Printed, 8*d*. Drawing.]

A.D. 1860, August 29.—N° 2086.

DEANE, Edward.—"Apparatus for facilitating culinary roast-" ing."

The invention "consists in attaching two or more vertical " 'lines' and 'dangles,' as they termed, to a roasting appara-" tus, in such a manner that the same may be worked by one " spring arrangement or motor; or where, instead of 'lines' or " dangles, two or more 'spits' are employed, the actuating of " the whole thereof by one and the same motive mechanism; or, " when 'lines,' 'dangles,' and spits are combined, more than one " spring or motor may be used, provided these springs or motors " may be made to act simultaneously, or by one winding up, which " system might also be adopted in the cases before named. To " effect all this," the inventor adopts "the usual spring arrange-" ment, or other convenient power, the motion from which" he prefers "to convey to actuate the vertical 'lines' or the 'spits,' " by means of a sliding bar which has racks thereon, which racks " should gear with the teeth of a pinion or toothed wheel in con-" nection with and worked by the spring arrangement or motor; " or, instead of the sliding bar with racks," "spindles with " wheel arrangements," may be used "or endless screws working " into suitable wheels, or endless chains, ropes, or cranks."

"These arrangements admit of 'spits' and 'lines' and 'dan-" gles,' being used with the same apparatus, or separately, as " required. In any case, the mechanism should be affixed to a " suitable roasting screen, frame, or case."

[Printed, 8*d*. Drawing.]

A.D. 1860, August 29.—N° 2088.

PERROTT, RICHARD, junior, and **MOLONY**, JOHN.—"Apply-"ing roasting jacks to kitchen ranges and cooking stoves."

Instead of placing the wheel of a jack in the chimney or in a portable screen, the inventors make a special air passage leading from the "apartment containing the cooking stove" and the flue, and mount the wheel therein. To effect this a box or case containing the jack is fixed in a suitable position, and a pipe leading from this up the flue guides the requisite draught.

[Printed, 8*d*. Drawing.]

A.D. 1860, August 30.—N° 2092.

MÈGE, HIPPOLYTE.—"Making bread and ship biscuit."

The whole of the flour is used. It is sifted into three qualities: first quality or pure flour; "white groats" mixed "with some "hundreth parts in weight of bran"; and "brown groats con-"taining from 20 to 25 per cent. of bran."

The "brown groats" with "5 or 6 parts of water" to "1 of "brown groats" are placed in the vat of an apparatus figured in the drawing, allowed to soak for two or three hours, and stirred. An india-rubber pipe from the bottom of the vat is then opened, and the liquor poured on a sieve. This sieve is agitated by means of a cam, so that the bran is shaken off into a receptacle at one side, while the "water saturated with flour" runs through into a vat below. In this the flour is precipitated, and the water run off. The bran may be again treated as before. The "white "groats" are then added and the leaven, and the whole mixed together. Lastly, the first quality flour is added, and the dough kneaded. To make ship's biscuit, a small quantity of alkali is mixed with the strained liquor: the white groats may be used or not.

[Printed, 8*d*. Drawing.]

A.D. 1860, September 1.—N° 2119.

FISHER, JOHN, and **FISHER**, JOSEPH.—(*Letters Patent void for want of Final Specification.*)—"Oven grates and kitchen ranges."

The invention consists "in making the ovens and closets of "oven grates and kitchen ranges moveable or separable from the "said grates or ranges."

The "ovens and closets" are made separate from the grate or range, and they are inserted in suitably-formed openings made in the front of the grate. They are "supported on suitably-placed "slides in the grate." They can be removed, "and when similar "ovens or closets are used on both sides of the fire their places "may be respectively changed after having been used some time, "so as to present the unused side to the fire."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 7.—Nº 2170.

DEANE, Edward.—(*Provisional protection only.*)—"Rotary "cooking apparatus."

"This invention consists in having a number of vertical re-"flectors or deflectors converging to an axis (to be suspended "within a meat screen or roasting apparatus or to be used without "a meat screen if thought desirable) and to be placed before a "fire, when this reflecting or deflecting apparatus being caused "to rotate (the things to be cooked being placed in any of the "spaces between the reflectors or deflectors) will be brought "round to the fire, accompanied by the reflectors or deflectors, "and the cooking effected in a ready and advantages manner."

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 8.—Nº 2182.

ZANNI, Geminiano.—"Apparatus for roasting."

"The invention has for its object to baste the meat continuously, "and with regularity, and to continue this operation while the "meat is exposed to the fire. To effect this object, the fat or "dripping from the meat is allowed to fall into the dripping "pan, from whence it is conveyed along a suitable channel to a "vessel or reservoir, in which is mounted a pulley or band wheel. "Around this wheel is passed a band, chain, or strap, which "carries small scoops or buckets, and passes round another band "wheel or pulley at the upper part of the apparatus. This upper "band wheel is actuated by means of clockwork, a smoke-jack, "or in any other convenient manner, and by this means rotatory "motion is communicated to the endless chain of scoops or "buckets, which by dipping into the liquid fat or dripping in "the vessel below, will raise the liquid and pour it into a channel "above, from whence it will run into a perforated channel or "dish placed above the meat. By keeping the endless chain of

" scoops or buckets in action while the meat is roasting, the meat " or joint will be kept properly basted, a regular and constant " supply of dripping being maintained."

" When the self-acting basting apparatus is applied to a spit " roaster on which several joints may be roasting at the same " time, the dripping pan may, if desired, be so constructed as to " receive the dripping from every joint of meat in separate compartments, and convey it away to distinct and separate recep- " tacles, each of which will be provided with an elevating apparatus, so that each joint may be basted with its own fat or " dripping."

[Printed, 8*d*. Drawing.]

A.D. 1860, September 20.—N° 2297.

MORLEY, Joseph Roberts.—" Baking dishes."

" The object of this invention is to render baking dishes " generally less liable to crack when exposed to the heat of the " oven in which they are placed, and is effected by forming the " bottom and portion of the sides of the dish of a soft unglazed " clay, or any description of clay that will not 'fly' by heat. " Also by forming the bottom edge of the dish in scollops, thereby " shaping it into feet so that the dish being raised slightly from " the bottom of the oven by the said scollops or feet, a current " of hot air is allowed to circulate beneath and around it."

[Printed, 6*d*. Drawing.]

A.D. 1860, September 26.—N° 2332.

FERRABEE, James, and FERRABEE, Henry.—(*Provisional protection only*.)—Gas heating and cooking stove.

There are two cases, one within the other, and so fixed that there is a free space on all sides between them. There is a " regulating valve " fitted at the bottom of the outer case, and the top is fitted air-tight. In the inner case are holes for admitting air. Gas-burners are placed within the inner case. A pipe leads from the top of the inner case to a flue or other exit. It has also a "regulating valve." Bread may be baked and other cooking operations carried on in the space between the two cases. The outer case may be of non-conducting material, and there may be more than one inner case. The inner case may be double and contain water. "A stand, with outlet" may be formed so that several apparatus may be used in conjunction. This stand may have "a receiver for the condensed water or other products" resulting from combustion.

[Printed, 4*d*. No Drawings.]

A.D. 1860, October 13.—Nº 2493.

WEARING, GEORGE.—Casting saucepans and other cast-iron hollow ware.

A full description of the process of casting is given. The interior sand core is built on a core box with an open base and shank with a "hedgehog" of projecting wires for supporting the core. The moulds are in three parts. The bottom one has a hole "concentric with the sides" for receiving the shank of the core box, and also a shank on the metal pattern. The pattern is in two parts, dividing at the bulge. In the process of casting, the lower portion of the mould is reversed upon an iron base, which has a shank fitting in the central hole of the mould box. The mould is filled with sand, reversed, and the iron base removed. A metal bead is pressed down into the sand, about the socket of the mould. This bead has a "rabbet" into which the upper half of the pattern takes, its shaft fitting into the socket of the mould at the same time. A conical plug is passed through a hole in the pattern, to make a shank for the handle. The upper part of the pattern next comes in, and then the rest of the mould box and the "get," the parts being filled up with sand as the process goes on. The portions of the pattern are then removed in proper order, molten iron poured in, and the process completed in the usual way. By this method, the inner and outer surfaces of the completed article are necessarily concentric, and all heated air and vapour escapes through the hollow below, so that the casting is more perfect.

[Printed, 1*s*. Drawing.]

A.D. 1860, October 25.—Nº 2607.

HODSON, WILLIAM.—"Moveable grates and ovens."

The first part of the invention refers to grates for heating apartments. In the second a "portable oven" is described. It is fitted to a kitchen range, and is mounted on wheels which run on rails laid across the fire-place. When in use, the oven is drawn over the fire; when not required it is pushed to the side of the grate. The parts of the rails extending over the fire turn up on a hinge when not in use. The casing of the oven is double except on the side where the door is. There is a hole in the top and bottom of the outer casing. The heated air, etc. passes in at the hole at the bottom, circulates in the space between the two casings, and passes out at the upper hole. The oven may be worked by a screw or otherwise along the rails.

[Printed, 1*s*. Drawings.]

A.D. 1860, November 2.—N° 2686.

CLARK, MALCOLM, and CLARK, ARCHIBALD.—(*Provisional protection only.*)—"Packages or holders for containing biscuits."

"According to this invention the biscuits are packed in air-
" tight packages or holders, formed by preference of paper, but
" other suitable materials may be used. These packages are
" formed of stout paper, and by means of a mould or other con-
" venient shaper the several pieces of paper are caused to take
" the particular shape of the biscuits." "When the biscuits are
" placed in these holders, the open ends are fastened down with
" paste or glue, or other convenient means, so as to exclude, as
" far as possible, the access of the air to the contents of the
" packages. To this end, also, it is preferred to use paper having
" a metallic surface to resemble tinfoil." "The exterior of these
" packages are stamped, printed, or labelled, so as to indicate the
" particular kind of biscuits enclosed therein, as well as the
" weight of the package. Instead of paper or tinfoil, cloth pre-
" pared with a coating to render it air-proof, or nearly so, may be
" used for these packages, also what is known as vegetable parch-
" ment," or other suitable materials.

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 7.—N° 2738.

DRESSEL, ROBERT, and LEVESTAMM, FERDINAND.—(*Provisional protection only.*)—Stoves.

The invention, except the part solely applicable to warming rooms, is thus described in the inventors' words:—

"Our invention relates to stoves applicable for heating rooms,
" dessicating, cooking, and for other purposes. It consists of a
" chamber of rectangular or other form, somewhat like ordinary
" enclosed stoves; it is divided into three compartments, the lower
" one the ash-pit, above it the grate and chamber to contain the
" fire, which is enclosed at top by a suitable door or cover, and

"above that the third chamber, which may be used as an oven. "This stove we usually make of cast iron, but other material may "be used, and we line it with fire-bricks up to the cover above "the fire, or it may be fire-clay suitably formed. The fire is "arched over by the fire-clay lining, and the door before mentioned "fitted thereto. This door may close with a sand or other smoke-"tight joint. The fire-chamber communicates with the chimney "by a suitable pipe leading from the upper part. The oven space "also has a similar communication with the chimney, and this "chamber is furnished with a door in the side, where the fuel is "introduced and dropped through the door or cover above the "fire-chamber; the first-mentioned door also answers for introduc-"ing or removing anything into or from the oven. There is also "a door to the ash-pit, which closes very, but not perfectly, air-"tight. This stove is placed on feet to raise it from the ground."

"The fuel, as before mentioned, is supplied at the top, and "when once the fire chamber is filled will last twenty-four hours "without replenishing. It is ignited from the ash-pit below, "and as soon as properly kindled the ash-pit door is shut, the "passage of air through which regulates the combustion, which "should not be allowed to blaze, but merely retain a more or "less bright incandescent state; valves are fitted to the air "tubes to more or less close them to regulate and restrict the "circulation of air therein, and so regulate the heat of the "chamber or room as desired. The upper chamber being con-"nected with the chimney, as before mentioned, all smell passes "away thereby, when that chamber is used as an oven for "cooking, and prevents any disagreeable smell in the room."

[Printed, 4*d*. No Drawings.]

A.D. 1860, November 23.—No. 2873.

ANDERSON, James.—"Preparing potatoes for boiling or cook-"ing."

The object is to separate potatoes into parcels containing potatoes of equal size, and equal specific gravity. The inventor says:—

"In carrying out this invention, I propose, firstly, to separate "or assort the potatoes according to their relative specific gravities "by passing them successively through different vessels contain-"ing liquids of different densities, as described in the Specifica-"tion of Letters Patent granted to me, bearing date the 11th day

" of November 1848, No. 12,324, or by any other suitable and " convenient means. I then take the parcels of potatoes so " assorted, and separate them according to size by passing them " through a revolving cylinder provided with openings of various " sizes, through which the potatoes fall into suitable receptacles " beneath, or by any other similar or suitable means."

[Printed, 4*d*. No Drawings.]

A.D. 1860, December 18.—N° 3105.

STEVENS, CHARLES.—(*A communication from Mr. Zimmermann.*) —" Cooking stove."

The stove consists of a metal box supported on four legs. Near one end of the case is a fire grate, the products of combustion from which pass along two flues above and below an oven extending the whole breadth of the case. In these flues are dampers. Behind the oven the flues unite, and the products of combustion impinge against the side of the boiler, being guided against it by an arched plate. Above the boiler is a chimney into which they escape. At the other end of the case is a roasting chamber, separated from the fire by perforated sliding panels. A series of holes in the bottom of this chamber causes a draught, These holes may be closed by a slide. A moveable piece carries a spit which may be brought nearer or further from the fire as required. A slide at the end closes this chamber. To enlarge the chamber, this slide may be removed and a cover attached to the side. Below the fire is an ash drawer. There may be apertures in the boiler to hold cooking vessels. The oven may be divided by a slide. Two of these stoves may be placed end to end and have one common roasting chamber. The fire-places may also be united behind.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1860, December 21.—N° 3137.

LOVERIDGE, HENRY.—" Meat screens."

The screen is made " of a number of pannels of metal plate, " stiffened at the edges by turning the plates over a wire or other- " wise, as is usual," and hinged " directly the one to the other. " The back of the screen is formed of a single pannel, with a " door formed in it a few inches in width at top, and two sides of " this pannel are turned inwards at right angles, so as to form " portions of the top and two sides of the screen, and the re- " mainder of the top and sides is formed of flat pannels of metal

" plate hinged to the edges of the back pannel so turned
" inwards. The shelves of the screen are hinged to the back
" pannel, the top sides and shelves of the screen are thus capable
" of folding down flat on to the back, and when so folded the
" screen packs in a comparatively small space. When the screen
" is required for use, the sides and top are turned out at right
" angles to the back, and are secured by stags passing across the
" front from one side to the other, and the shelves are turned
" down, and rest on ledges on the sides; one of the cross stags
" carries a hook to receive the bottle jack. A folding screen is
" thus constructed entirely of metal, and is consequently not
" liable to warp or get out of shape when exposed to the heat of
" the fire."

[Printed, 6*d.* Drawing.]

A.D. 1860, December 24.—N° 3155.

ADAMES, Charles Henry, and WHITEHOUSE, Cornelius.—" Manufacturing frying pans and other articles."

After the first ordinary stamping process, the articles are, if needful, brought up to shape by pressure between dies or under a hammer, and finished as follows :—

" A tool, the form of which shall nearly correspond as to shape
" to an ordinary pan hammer or planishing hammer, is fixed to
" an arm, or lever, or piston rod, which is raised and depressed as
" rapidly as may be desired, by means of an excentric or other
" suitable and convenient arrangement of mechanism. The tool
" may, if desired, be made with several faces, as if several
" planishing hammers were assembled together, and when the
" hammer is brought down on to the iron it will make thereon as
" many marks as there are faces. Below the hammer is placed
" a stake or anvil on which the pan should be placed and sub-
" mitted to the action or blows of the hammer when the later is
" set in motion. Any scale which may be formed on the face of
" the iron must be removed therefrom, and the plate is hardened
" and finished. This method of planishing may be applied to
" the brim or side of the pans as well as to the bottom part of
" them. When it may be desired to produce the required effect
" upon the bottom of the pans at one blow, this is effected by
" making a hammer or top die which shall be of the size or nearly
" the size of the surface of the bottom of the pan, and on the
" face of this hammer or top die, or on the bottom die or anvil,

" an appearance of a number of hammer faces is produced, which " appearance is reproduced on the surface of the pan. As to the " brim or side of the pan, in some cases the required finish may " be produced by passing the brim of the pan between two rolls; " the upper or both of which would in that case have a similar " appearance of hammer faces produced upon them to that above " described for the hammer, and which appearance would, in this " case, be reproduced on the brim of the pan.

" It will be necessary to still further improve the appearance of " the pan by sharpening the angle formed by the side and " bottom," "this is done in some cases at one blow, and is effected " by placing in the bottom of the pan a creasing tool formed of " a plate of steel or other hard metal formed with an edge " bevilling outwards from its centre, which being struck, produces " the required effect or 'crease' on the bottom of the pan. On " this crease may be produced by means of a wheel of a suitable " shape caused to travel round the pan with great pressure " upon it; or the 'crease' may be produced by a tool similar " to a burnisher in a lathe. The top or outer edge of the " pan is levelled or pared by means of circular or other shears, " or by being placed in a lathe and cut with a suitable tool. " The pairs, if 'black,' will, after having gone through the pro- " cesses above described, require setting by giving them another " blow in a stamp or press, when they will be finished; but bright " pans, will require 'turning' and 'scraping.' The bottoms are " brightened by the action of a number of scraping tools or " cutters made generally to cut both backwards and forwards, and " worked by a series of excentrics or levers so adjusted as to size " or length as to cause each cutter to act along the length or " diameter of the bottom, across the part of it in which each " cutter is to travel."

[Printed, 1*s.* 2*d.* Drawings.]

1861.

A.D. 1861, January 11.—N° 78.

PAGE, Marie Christophe Eugene.—" Kneading machine."

The machine consists of "a hollow cylinder, into which will " be introduced the matters or paste to be mixed or kneaded;

" through the centre of this cylinder will pass a screw shaft, by " which a helicoidal come-and-go motion will be given to a cross " bar carrying one or more blades. The screw will be set in " motion by a crank turned by hand or other power alternately " right and left, as the screw draws the bladed cross bar to one " or pushes it to the other extremity of the cylinder. A spring " placed near the crank end of the shaft will permit the screw to " advance or retire when it arrives at the end of its course, so " that the blades may scrape the bottom of the cylinder, which " will have openings at each end for the exit of the kneaded " matter."

[Printed, 6*d*. Drawing.]

A.D. 1861, January 11.—N° 83.

AGER, NATHAN.—" Stoves and ranges."

" In place of the lower part of the chimney or flue at the back " of a stove or range receiving the products of combustion from " above the fuel in the basket which contains the fire, the lower " part of the chimney or flue is caused to descend behind the " back of the basket and to the bottom thereof. The back of " the basket is made with bars or otherwise, with passages through " it so that the draft may pass from front to back of the fire in " the basket, the products of the fuel passing through the back " of the basket into the flue or chimney. It is preferred that " the sides or cheeks of the basket should be hollow and form " hot air chambers communicating with the lower part of the " flue. The back of the stove or range above the basket is closed, " or only as a comparatively small opening above the back into " the flue. The ordinary register of a stove is kept closed and is " only required to be opened when sweeping the chimney. In " order to regulate the quantity of opening above the back of the " basket a slide is used, which may be raised or lowered so as to " enlarge or close the opening into the flue or chimney above the " back of the basket."

[Printed, 1*s*. Drawings.]

A.D. 1861, January 15.—N° 121.

STEVENS, EBENEZER.—" Machinery for preparing dough."

Improvements upon No. 246, A.D. 1858. To the machine therein described is added a hopper to supply from. In the lower part of this hopper is "a rotating axis having oblique blades " thereon, so that when the axis is rotated, and the slides" which open and close the discharge opening of the hopper "are more " or less open" the flour will be discharged on the dough beneath. This hopper may be connected by means of a shoot with a bin or receptacle, the slide being regulated by a slide. "The axis " within the hopper or feeding vessel has a cog wheel thereon, " gearing into a cog wheel on the axis of the mixing machine, " provision being made to put these wheels out of gear when a " further supply of flour from the hopper or feeding vessel into " the mixing machine is no longer required. In order that the " flour supplied from the hopper or feeding vessel may be applied " in such manner as to 'dust' over the dough or paste in the " mixing machine, there is a moveable inclined board, on to which " the flour is received as it descends from the hopper or feeding " vessel; to this board a quick vibratory motion is communicated, " by which the flour is dusted or distributed over the dough or " paste below. When the flour is desired to descend freely to " the mixing machinery, the board is retained in a stationary " position."

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1861, February 20.—Nº 420.

HOLSTEAD, THOMAS.—" Apparatus for the manufacture of " certain articles of confectionery, and biscuits and other articles " from plastic substances."

The machine is intended principally for the shaping and cutting out of biscuits or lozenges. The paste, dough, etc., is rolled between three pairs of rollers, one of which may be of glass. These rollers are driven at different speeds "according to the diminished " thickness of the paste." In the provisional specification a contrivance for dusting the surface of the paste is described. Sugar, flour, etc., is sifted on to the upper surface, and applied to the lower surface by a revolving brush within a box filled with the flour, etc. This process is afterwards disclaimed. After passing the rollers, the paste is delivered to a cloth and then to a second cloth which carries it over a perforated table. At this time the rollers carrying the cloth are thrown out of gear, and the paste receives any further polish by hand on both sides. Through the perforations in the tables work hollow cutters. "The paste is held against the cutters or "pressed towards them whilst the cut is being made by a disc or "button, acted upon by a spring or springs from behind, so arranged and of sufficient strength that when the cutters are pressed "against the paste, the article severed enters the interior of the "cutters, which are made agreably to the form of the intended "article. After the lozenge, biscuit, or other article has been "severed from the dough or sheet of paste, it is then discharged "through the hollow cutters by means of plungers situated over "against the cutters, and which plungers are made or caused to "protrude beyond the buttons into the interior of their opposite "cutters, and received upon boards or pans travelling beneath "at such a speed as to cause the lozenge or biscuit, or other "article to be distributed over the boards or pans in such manner "as is required. The plungers are then withdrawn to the face "of the buttons, and the operation is repeated. After each "operation of cutting, the waste or paste which remains is "conveyed by an endless cloth into a box."

[Printed, 10*d*. Drawing.]

A.D. 1861, March 19.—N° 689.

BOLTON, JOHN ADAMS.—Heating Turkish baths, cooking ovens, etc.

The invention is principally applicable to Turkish baths, but it is stated that it may also be used for other purposes including the heating of ovens. As applied to a Turkish bath; air enters by a flue which bifurcates and leads on each side of a furnace up to a chamber over the furnace. In this chamber are iron plates fixed across the direction of the current, which give increased heating surface. Instead of the flues air may be brought to the heating chamber by a spiral tube, and conveyed away by another spiral tube, the two spirals being interlaced. From the heating chamber the air is carried to apertures in the floor of the room forming the bath. The smoke flues from the furnace lead alongside the air flues, and it is said that the smoke travels in one direction, and the air in another in parallel flues.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1861, March 23.—N° 732.

CLARKE, WILLIAM HENRY.—(*Provisional protection only.*)—"Commissariat ambulance cooking apparatus."

The first part consists of a boiler heated by a charcoal fire at top, the fire being "supplied with air by a downcast channel." "This fire receptacle dips into the water and causes it to boil." Cooking vessels are fitted in the cover, some exposed to dry heat in a separate compartment, and others to which steam from the boiler is admitted. The steam passes to each vessel separately. For more extensive operations, a multitubular or other boiler may be arranged, with a steam dome. At one end of the boiler is an oven, through double partitions in which the heat circulates. Vessels are arranged about the sides, and have steam supplied through flexible pipes. The whole apparatus is mounted on wheels.

The second part relates to a "field kitchen stove." "It "consists of parts somewhat like an ordinary portable boiler." This is fitted with various vessels. "Boiling will be simply as "usual;" for roasting or baking there is "a vessel with a double "bottom and sand bath," "the roasting vessel having a little "circulation of air." Two operations may be performed at once by the steam passing from a lower to an upper vessel. For roasting and stewing "suitable vessels" may be fitted one inside the other. One or two hot closets may be placed under the fire.

The third part relates to a "field range" to be inserted in a bank of earth. The earth forms the back and sides, and the front is made of a frame of iron tubes with side pieces to drive into the ground. An oven is attached to the front, and a rail goes round the upper part of the fire to support the cooking utensils. The fire may be "double-fronted" with an oven on one side and the boiler on the other.

A cart for conveying provisions is also described.

[Printed, 4*d*. No Drawings.]

A.D. 1861, March 28.—N° 779. (* *)

STRATFORD, William.—Furnaces for bakers' ovens, etc.

This invention relates to the construction of the sides and bridges of furnaces of wrought-iron formed into hollow chambers suitably stayed, through which the feed water passes and is heated before entering the boiler; these chambers communicate by pipes with the water and steam spaces of the boiler. Furnaces for bakers' ovens, brewers' coppers, and for other boiling and heating purposes are so constructed; pipes are provided for carrying off steam to the chimney, and the supply of water is regulated by a float; thin or narrow passages are arranged between and about the water chamber for the introduction of air, which is made to combine with the flaming gases at the back of the furnace.

[Printed, 10*d.* Drawing.]

A.D. 1861, April 1.—N° 797.

RUSSO, Gregorio.—(*Provisional protection only.*)—" Substitute " for saffron."

" Curcuma root " is used instead of saffron for all purposes, but especially in making " cheese pastes, vermicelli, &c." The root is ground " into the finest powder " and employed in any suitable way.

[Printed, 4*d.* No Drawings.]

A.D. 1861, April 12.—N° 904.

DOUGLAS, Joseph.—(*Provisional protection only.*)—" Kitchen " ranges."

The improvements relate to the flues of the ranges. They are made " of the same surface area as the parts of the oven and " boiler to which they conduct the heat, and shallow compared " with their width." They lead " over the entire surfaces of the " top, one side, and bottom of the oven, thence underneath the " fire-place, and under the entire surfaces of the bottom and one " side of the boiler," and thence to the chimney. The boiler extends from back to front of the range. A tube to conduct air to the interior of the oven is placed " at such a point in the flue " that the air in its passage through it to the oven cannot be " overheated."

[Printed, 4*d.* No Drawings.]

A.D. 1861, April 16.—N° 931. (* *)

GIPOULOUX, Pierre.—" Cooking stove."

The invention " consists in the novel combination and con- " struction of an improved cooking stove, the fire employed to " that effect being also made available to generate gas adapted " for illuminating, heating, and other purposes." Two coal retorts are placed above the fire and are heated by flues which encircle them; cooking vessels are made to fit into the upper part of the flues, and below the retort are formed two ovens which are heated by the waste heat.

[Printed, 6*d.* Drawing.]

A.D. 1861, April 17.—N° 940.

ANTHONISSEN, HENRY.—(*Provisional protection only.*)—
" Making bread and obtaining starch."

The two processes are effected by a single operation. "The " flour is put in a trough and mixed with cold water; the dough, " which is made in the usual manner, is then put into a washing " apparatus, to which an alternating circular movement is given; " this effects a thorough separation of the two substances gluten " and farine. Openings made at the bottom of the zinc receptacle " of the washing apparatus permit the liquid containing the " starch to pass into tubes which conduct it to sieves; these " sieves receive a horizontal circular movement which effects a " perfect separation. The glutinous part which cannot pass " through the sieves is thrown by these last upon hoppers, from " which it falls into vats. The gluten soon forms a compact " mass, and is taken out of the apparatus by two small doors " made one in the zinc receptacle, the other in the vat; buckets " are then filled with the dough, and conduct it to the ferment-" ing vat, from which, when properly fermented, it is lastly " removed to the kneading trough for the making of bread."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 19.—N° 962.

MINGAUD, PHILIPPE.—Jellies, syrups, etc.

Various products are obtained from the "fruit, leaves, and " flowers of a tree called in Latin, arbutus unedo or arbousier." The parts referring to the present series are thus given:—

"The following is the manner of treating the fruit for obtaining " jelly:—To a given quantity of fruit take an equal weight of " water and boil together for half an hour, turn the mixture out " on a linen cloth, and leave it to run through without pressing " or squeezing, add an equal weight of sugar, and boil again till " it has the thickness of jelly, then flavor with vanille.

"Another jelly is made by pressing a given quantity of the " fruit through a horsehair sive, then again straining the pulp " thus obtained through a linen cloth, add half its weight of " sugar, boil the mixture a short time, and flavor with vanille. " The jelly thus obtained has the full flavor of the fruit."

"Jam is made by taking a given quantity of fruit and boiling " it in double its weight of water for an hour; it is allowed to

" pass through a linen cloth without pressing, & put into a " basin with an equal weight of sugar; when the sugar has " melted, musk pears, and apples are sliced in a suitable quantity, " and the whole boiled a sufficient time."

"An excellent syrop is obtained by taking 30 parts of hydro-" alcoholic extract of the fruit to an equal quantity of alcoholature " of the flowers; dissolve the alcoholic extract in 125 parts of " arbousier flower-water, filter, and add 5,000 parts of boiling " syrup of sugar; when it is cool add the 30 parts of alcoholature " of the flowers."

[Printed, 4*d*. No Drawings.]

A.D. 1861, April 29.—N° 1076.

NEWTON, WILLIAM EDWARD.—(*A communication from Francis Huckins.*)—"Desiccating and torrefying farinaceous and other " substances."

The substance to be treated is placed in a vessel surrounded with a jacket containing oil. Heat is applied to the oil and thus to the substance within. "The apparatus consists of a semi-" cylindrical vessel of cast metal set directly over a furnace, which " may be made of masonry. Within the semi-cylindrical vessel " there is fitted or placed a smaller semi-cylindrical vessel or " retort, so as to leave a space between them at all points. The " retort is so constructed as to admit of being tilted on either " side. This tilting of the retort enables its contents to be " removed with great facility. Any suitable hoisting device may " be used for tilting the retort. A shaft is placed longitudinally " on the upper part of the retort, and allowed to rotate freely in " its bearings. On this shaft there are placed a series of arms, " on each of which is fitted a rod having collars and spiral springs " on them. The springs have a tendency to keep the rods forced " outward, and at the ends of the rods there are placed scrapes, " one on each rod, the scrapes being simply bars of V-shape in " their transverse section, and made to bear against the inner sur-" face of the retort as they pass over it. On one end of the shaft " is placed a pinion, into which a toothed segment gears. This " segment has a vibrating movement given it. On the shaft, near " each end of it, there are placed arms or scrapers, which work " over the surfaces of the heads of the retort. The operation is " as follows:—The jacket of the retort is supplied with animal

" oil, so that the retort will be in contact with it all around. The " substance to be desiccated or torrefied is placed in the retort, " and heated through the medium of the oil, the latter being " heated by the furnace."

[Printed, 8*d*. Drawing.]

A.D. 1861, May 4.—Nº 1121.

RYDILL, George.—(*Provisional protection only.*)—" Smoke " consumer."

Amongst other purposes the apparatus is applicable to " bake- " houses." The smoke passes through a red-hot retort, thence to a blast fan or other blowing apparatus, which drives it " along " a pipe into water, at which extremity a fan or worm is in motion " as necessity requires the vessel which receives the contents of " the smoke, sulphur, dust, carbon &c.; the vessel contains water, " remedying the pressure, so as to move the water. The water " may be pure, in some cases lime or liquids will have to be added, " as the carbon will vary as to the quality from the different coal " fields, also to admit steam into the vessel or flue, as circum- " stances require water hot or cold in like manner, so as to prevent " the carbon, oxygen, &c., from ascending; also to purify by " water or steam the smoke as it passes along the flue or flues " as circumstances require, by water or steam springers."

[Printed, 4*d*. No Drawings.]

A.D. 1861, May 6.—Nº 1139.

JOHNSON, William.—" Apparatus for churning and knead- " ing."

" A cylindrical vessel is used, which by preference is made in " two parts, one being fixed, and the other capable of being " moved or opened on hinges or otherwise, within which vessel " a screw shaft works, having thereon by preference a single " thread or screw, and either perforated or unperforated. The " radius of the screw is nearly the same as that of the interior of " the vessel within which it works. It is preferred that the vessel " and screw shaft should be horizontal. The screw is (when " churning or kneading) caused to alternate, so that the materials " under process are moved alternately to and from the two ends " of the vessel, but when the process is completed the product " may be forced out through an opening at one end of the vessel " by rotating the screw shaft in one direction. It is preferred

" that the screw shaft should be caused to rotate by means of a " screw nut and suitable handles acting on a screw formed on " the shaft external of the vessel, so that by moving the screw " nut to and fro on the screw which is formed on the shaft external of the vessel, the screw shaft, and consequently the " screw in the vessel, will rotate in one direction, and then in " the other. Other means, however, of giving an alternating " rotatory motion to the screw shaft may, if desired, be resorted " to." A scraper, fitting the screw thread, may be made to slide over the screw and cleanse it.

[Printed, 8*d*. Drawing.]

A.D. 1861, May 23.—N° 1311.

BROOMAN, Richard Archibald.—(*A communication from Noel Etienne Aimé Paret.*)—" Portable cooking apparatus."

A frame or grate contains the fire. From each side springs an upright on which slides a collar, adjustable by a screw at any required height. To the collar is attached a perforated plate, on which the cooking vessel is placed. In place of the uprights one or two racks may be employed, and the shelf supported on them. In this form the invention may be applied to a fire-place. Instead of the fire-grate a shelf supporting a spirit-lamp may be used.

[Printed, 6*d*. Drawing.]

A.D. 1861, June 1.—N° 1375.

GONDOLO, Paul.—" Kneading machine."

A shaft revolves within a semi-cylindrical trough. To this shaft are attached pallets or arms arranged " quincunxially, each " end being curved in the manner of a rake tooth," all the teeth are " besides shaped helically, being with respect to one another " in a helicoidal direction, and forming a double broken helix " with opposite furrows, the solutions therein being intended for " the passage " of a corresponding series of fixed pallets, arranged in the side of the trough. These fixed pallets may be each mounted on an arm hinged outside the trough, so that they can be withdrawn, or, instead of being attached to the side, they may be mounted on a shaft, which, by means of screws, can be caused to assume different positions. The shaft is driven by suitable gearing, and it may receive two different rates of speed according to the condition of the dough. The trough may be rocked, or reversed, by means of a rack and pinion. The dough made is "of a tough thick nature," applicable for vermicelli, biscuits, pastry, etc.

[Printed, 10*d*. Drawings.]

A.D. 1861, July 6.—N° 1426.

BAKER, George.—"Apparatus for churning and for beating "eggs."

The apparatus "consists of an open vessel, on opposite points "on the sides of which two uprights are fixed, the said uprights "being connected by an arched top. In the axis of the vessel is "a shaft or spindle, which is supported at its lower end in a "bearing on the bottom of the vessel, and at its upper end by "the said arched top. That part of the spindle which is situated "in the vessel carries beaters or stirrers arranged upon it radially, "and the upper part of the said spindle is in the form of a quick-"threaded screw. On the screwed part of the spindle is a screw "box or nut, by working which up and down a rapid reciproca-"ting rotatory motion is given to the spindle and beaters or "stirrers." "The liquid to be operated upon is placed in the "vessel, and the screw box or nut worked up and down. The "motion of the beaters or stirrers, which are immersed in the "liquid, effects the churning, beating, mixing, or agitating of "the said liquid. The spindle carrying the beaters or stirrers "may be removed for cleaning or other purpose by unscrewing "a button on the arched piece."

[Printed, 10*d*. Drawings.]

A.D. 1861, June 18.—N° 1559.

TAYLOR, William Brown.—(*Provisional protection only.*)—"Heating by means of lamps."

The lamps are of any usual sort used for purposes of lighting. "The mode or method of employing or utilizing the heat of "flame from lamps in heating the fluid contents of vessels is, by "forming them with an internal flue or tube of any suitable form, "and by removing the glass chimney ordinarily employed for "insuring perfect combustion in the production of light, and "placing the vessel as described upon or over the lamp in such "a position as the vertical flue or tube of the vessel will form an "equivalent for the glass chimney or flue previously employed. "The form of the vertical flue or tube may be varied so as to

" ensure the greatest heating surface or means of abstracting the
" heat, and imparting it to the vessel and its contents. For other
" forms of vessels, and for other purposes where heat has to be
" applied, the form of the wick of the lamps must be varied so
" as to present a suitable proportion of surface to the hollow
" form employed under the present invention. For heating ex-
" periments, and for other purposes to which stoves are commonly
" employed," " the vertical flue form of arrangement previously
" described," is adapted " in such a manner as to enable the heat
" to be imparted to an extended surface in accordance with the
" special purposes for which such heating apparatus or stove may
" be required, and whether intended to be employed for cooking
" or other purposes. Instead of forming the tube or flue as an
" ordinary lamp chimney," the form of the flue is varied, and
made " a spiral or other suitable form, to increase the extent of
" the heat-abstracting surface."

[Printed, 4*d*. No Drawings.]

A.D. 1861, June 21.—N° 1596.

TURNER, George.—(*Provisional protection only.*)—" Apparatus
" for beating eggs."

A " rectangular frame is caused to rotate within a suitable
" vessel or chamber containing the eggs, butter, milk, or other
" fluids or materials to be beaten, agitated, or mixed. The rect-
" angular frame is connected to a pin or axis which turns in a
" suitable frame or support, and rotary motion is communicated
" to the pin or axis by toothed wheels, or by other convenient
" mechanical means. The flat surfaces of the vertical bars of
" the rectangular rotating frame are placed at an angle to the
" outer circumference or sides of the vessel, so that in their rota-
" tion the fluids or contents of the vessel are forced towards the
" centre thereof." The inventor prefers " to form or intersect
" the rectangular frame with one or several diagonal, horizontal,
" or angular bars to force or direct the fluids or materials in
" different directions. The vessel may be formed with or sur-
" rounded by a chamber to receive steam, hot water, ice, freezing
" mixtures, or other materials as may be required. If desired,
" two or more rectangular frames, as above described, may be
" arranged to work together in the same vessel."

[Printed, 4*d*. No Drawings.]

A.D. 1861, July 13.—Nº 1760. (* *)

RYDILL, George.—(*Provisional protection only.*)—"An improved smoke consumer and condenser."

The invention is amongst other purposes suitable for bakehouses, etc. The inventor says:—

"I set the boiler inner flue with fire-bricks with a chequered "roof or plain invert; the ash place or box with bricks with a "tongue and groove, fitting into each other at the bottom, top, "and ends. I place in the flue any kind of openwork of iron, "copper, brickwork, or stone; the brickwork fixed round the fire "forms a retort, which gives a steady heat to the boiler; hot air "is admitted from the boiler, house, factory, or any other place. "The smoke from the fire or fires passes into the flue or flues, "where it is played upon with water springers, hot or cold being "used, which is conveyed from the boiler or boilers by means of "a pipe or pipes; the water playing amongst the smoke as it "travels along towards the chimney causes a combustion and "a condensation to take place."

[Printed, 4*d*. No Drawings.]

A.D. 1861, August 2.—Nº 1921.

DROUOT, Joseph Eugène.—"Apparatus for kneading."

An annular trough revolves round a central pillar which supports a motive-power engine. The trough is supported by rollers actuated by the engine, or it may be revolved by means of a rack and pinion. There is "a beater shaped in a kind of nautical-"screw form, with carved out blades performing horizontally in "a fixed position." This separates and opens the paste. There is also "a kind of fork (the fingers of which are however con-"nected at the ends as well as at the beam) and which revolves "vertically at a right-angled position with the beater." The fork "may be turned up out of position when not required.

[Printed, 10*d*. Drawing.]

A.D. 1861, August 6.—Nº 1953.

MACMORRAN, Joseph.—"Machines for mincing meat."

The machine is of the ordinary shape, consisting of a horizontal cylinder, within which works a shaft fitted with propelling blades; these blades carry the meat against fixed knives working between them. The body of the machine is in one piece, so that there are no joints through which the juice escapes. The knives are sharpened at both edges and are reversible. The end plates are moveable, so that knives and propellers can be drawn out. The spindle has a bearing at each end, that at the driving end conical, so that it can be tightened up by screwing. "When triple propellers " are used," "the last propeller is made wider than the rest, being " conical on the outside, and bears inside a conical socket, which " socket forms the delivery tube." If less than three propellers are used, a plate with apertures in it is fixed on the spindle. The delivery aperture is fitted with moveable rings with tubes of different diameters, so that the fineness of the "cut" may be varied.

[Printed, 8*d*. Drawing.]

A.D. 1861, August 31.—N° 2172.

JONES, THOMAS MORETON.—Roasting apparatus.

On a vertical spindle mounted in a suitable frame is an escape wheel, the teeth of which gear into pallets at the centre of an oscillating bar. On the ends of the bar slide weights which regulate the speed of the apparatus. On the axle of the escape wheel is a pulley over which passes a chain. The chain is led outside over pulleys and carries weights which drive the apparatus. As it works equally well in either direction, either end of the chain may be weighted. The article to be roasted is suspended from the lower end of the axle of the escape wheel. A multiplying wheel between the chain and the escape wheel may be used. If more than one article is to be roasted, motion may be given by gearing, or by endless chains and pulleys, to any number of spindles from which the meat, etc. is to be suspended.

[Printed, 10*d*. Drawing.]

A.D. 1861, September 3.—N° 2196.

ROBERTSON, PATRICK. — (*Provisional protection only.*) — " Treating yeast."

"In order to obtain dry yeast which may be kept for a con- " siderable time without prejudice to its quality," the inventor separates " as much of the moisture as possible for subjecting the " yeast to the action of a centrifugal machine to pressure or " otherwise," and then dries it in a chamber or vessel, which has "shelves or supports on which are placed trays containing

" sulphuric acid, chloride of calcium, carbonate of potash, Cana-
" dian potash, or lime, in such manner as to be surrounded with
" the shelves or supports, having thereon the yeast to be dried.
" A vacuum is obtained in the chamber or vessel by exhausting
" pumps or otherwise, and in time the yeast will be completely
" dried; the yeast is then reduced to powder, and is fit for use
" The powder may be stored in bottles or other close vessels."

The rest of the specification does not refer to this series.

[Printed, 4*d*. No Drawings.]

A.D. 1861, September 13.—N° 2278.

FELL, Richard.—(*Provisional protection only.*)—Obtaining motive power.

Air is heated in an air chamber over a furnace to provide motive power for the propulsion of ships and other purposes. For cooking, this hot air may be admitted "into an air-tight compartment
" provided with partitions, above which the cooking vessels are
" placed."

[Printed, 4*d*. No Drawings.]

A.D. 1861, September 26.—N° 2400.

BENTLEY, Thomas.—"Apparatus for beating eggs."

The invention "relates to improvements in that description of
" apparatus for beating eggs or other matters known as the 'Archi-
" 'median egg beater,' which consists of an axis on which a spiral
" or screw thread is formed, the lower end having an open wire
" frame or beater attached thereto, the whole being caused to
" rotate in opposite directions alternately by moving a sliding
" socket containing a pin, which enters between the threads of
" the spiral or screw up and down thereon, the upper end of the
" axis being held whilst the lower end rests on the bottom of the
" vessel containing the eggs or other matters to be beat or stirred.
The invention consists "in forming the Archimedian screw or
" spiral upon a tube to which the rotatory beaters are attached,
" this tube and beaters being caused to rotate upon and around
" a fixed central axis, to the lower end of which a fixed frame
" with stationary arms is attached, which may intersect or sur-
" round the arms of the rotating beaters. Rotatory motion is
" communicated alternately in opposite directions to the beaters
" by a sliding socket (containing a pin, which enters between the

" threads of the screws on the hollow axis,) which is moved up " and down whilst the central axis is held stationary by hand or " in a suitable frame at the time the beaters are immersed in the " eggs, batter, or other matters to be stirred or agitated."

[Printed, 6*d*. Drawing.]

A.D. 1861, October 5.—N° 2493.

TURNER, James.—(*Provisional protection only.*)—" Machines " for mixing, mincing, and pounding."

" A mixing receptacle to contain the articles to be operated upon " is supported on a central pivot, and is free to revolve thereon. " Motion is communicated by a handle placed on a horizontal " shaft carrying an endless screw gearing into a circular rack on " the outside of the said receptacle. Pulleys are keyed on each " end of the said horizontal shaft, and convey the motion by " means of bands to fly wheels placed on each side of the machine. Connecting rods attached to each of the fly wheels " communicate motion to a crosshead working over the said " receptacle. To the said crosshead is attached the mixing or " other instrument required for use in the different purposes to " which the machine is applied. For mixing purposes a pair " of whisks are used, the prongs of which pass between each " other as the whisks revolve within the said receptacle. For " mincing purposes knives are used in place of the said whisks, " and a cap containing a block of wood, with a metal rim, is " inserted on the top of the said mixing receptacle. For pounding purposes a pestle is attached to the said crosshead, and the " article to be reduced is placed in a shallow vessel inserted in " the top of the mixing receptacle; the said vessel has a wire " gauze bottom acting as a sieve, but the central part subjected " to the action of the pestle is made solid. The mixing receptacle is embraced by a tilting frame, by means of which it may " be tilted for the removal of the mixture. The machine can be " fixed to a bench or dresser by means of a clamp."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 7.—N° 2499.

CHAPLIN, Alexander.—" Combined winding engine, boiler " and cooking and distilling apparatus."

The apparatus is intended for ship's use. A boiler is used to generate steam which drives an engine for various purposes.

Attached to this is a cooking apparatus. Connected to any convenient part of the boiler is a steamer for cooking, also a steam oven heated by a steam-jacket. Over part of the boiler furnace is a cooking range with an oven and hot-plate. Flues pass round the oven and under the hot-plate from the furnace, and lead into a separate funnel, distinct from that of the boiler. A steam jet in this funnel assists the draught. The flues of the range may be cut off from the fire by dampers. There is a separate fire-place at the side of the range, connected with the flues. This may be open at one side and used for roasting. It may be cut off entirely from the flues by a damper. Distilling apparatus may also be added.

[Printed, 8*d*. Drawing.]

A.D. 1861, October 21.—Nº 2629.

WINNIATT, William.—(*Provisional protection only.*)—" Ma- " chines for kneading dough."

In place of the series of blades mounted on a straight axle, which is usual in kneading machines, " one blade forming several " elements of a helical plane " is used. " This blade is held in its " position not by being fixed throughout its length to a solid " axle, but by attaching each end of the screw so formed directly " to a pivot which revolves in suitable bearings. The screw " revolves in a trough of wrought iron, galvanized, or of other " suitable material, and in the ends of this trough are the " bearings for the pivots attached to the screw. The screw or " helical knife is set in motion either by the application of direct " power or by the introduction of rack and pinions, or by any " other mechanical contrivance for effecting the purpose. It will " be seen that the helical knife presents two cutting edges, which " will continuously divide the material to be kneaded, and dis- " place it from one part to another of the trough in which the " helical knife works.

"The trough with its internal screw and the arrangement for " imparting motion to this screw are mounted upon suitable " framework, which is so made that the trough projects at one " end beyond the framework for the purpose of working out the " dough, when sufficiently mixed or kneaded, into an ordinary " kneading trough. At this end the trough is provided also with " a door opening on hinges, and fastening with handle and " button."

[Printed, 4*d*. No Drawings.]

A.D. 1861, October 23.—Nº 2649.

DELIRY, Joseph Felix Victor.—" Mechanical kneading " trough."

" This apparatus consists in a circular basin (of metal or other " material) in which are placed flour and water required for " making dough. This basin revolves on a vertical central shaft " and bears upon three or more rollers. The requisite rotary " motion is given, either by hand or steam power, through " a bevil pinion cogging or gearing into a corresponding " crown fitted under the circular basin. Within the latter there " is a central envelope, leaving an annular space for working " the dough, and the actuating gearings are fitted in the central " part of the basin; they impel the kneading organs as the basin " revolves. When the dough has been sufficiently kneaded, the " central gearings with their appendages are raised up by means " of a screw lodged in the vertical shaft to allow the workman to " take out the dough in order to form the loaves for the oven." The kneaders are " somewhat of a screw shape," and revolve on horizontal shafts which can be thrown in and out of gearing as required. There is a moveable partition which can be slid in the trough to separate a portion of dough for any special purpose. A scraper with two blades, shaped so as to fit the angle of the sides and bottom of the trough, is figured.

[Printed, 10*d*. Drawing.]

A.D. 1861, November 7.—Nº 2795. (* *)

WIGHAM, John Richardson.—" Apparatus for the manu" facture of gas, parts of which are also applicable for cooking."

The invention " consists in the peculiar construction or arrange" ment of a vertical retort for the manufacture of gas, and " specially as regards domestic purposes, whereby the waste or " surplus heat produced by such retort is made available for " domestic or cooking purposes, the retort being heated by " means of a circular or other shaped stove or furnace, so " arranged that the top plate of the same may be used for " cooking."

[Printed, 10*d*. Drawing.]

A.D. 1861, December 13.—Nº 3124.

BELL, William.—" Kitcheners."

The bottom of the grate consists of a perforated plate or set of bars which is supported on a frame set in the brickwork, but can be removed. A false bottom with legs may be placed on the frame, and in that case the true bottom is taken out. There is a projection at the back of the false bottom, which fits against the inclined back of the fire-place.

The oven is ventilated by means of a cast-iron box at the back extending over the width of the oven. This box communicates with the oven through a series of holes, or by one hole extending along its length. At one end it communicates with the chimney, and here there is a damper. This box "forms the back stopping "in front of the flue under the hot plate."

A new latch for the oven door is used. It "consists of two "levers, namely, a long lever constituting the true latch, and "turning on a joint at a distance from its middle, and a shorter "lever with rule joint for acting on the said latch. The latch is "situated in a plane parallel to the door, while the short lever "is situated in a plane at right angles thereto. One end of the "short lever is inserted in one end of the latch, and by lifting "the projecting end of the said short lever, the distant part of "the latch which engages with the catch on the side of the "oven is raised." A spring may hold the latch in position. The whole is enclosed in a case.

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1861, December 26.—N° 3237. (* *)

PALMER, JOSEPH NOTTINGHAM.—(*A communication from John Russell.*)—"Cooking stoves and ships' ranges."

"This invention consists in the introduction of a flue at the "back of the stove, with a view of increasing the draught and "allowing the heat to pass all round the ovens and up the chimney "or pipe, thereby heating the bottom of the ovens as well as the "top, and in supporting the stove pipe by means of a separate "cast-iron oblong pipe attached to the back of the stove to allow "the top or hot plate to be removed for the purpose of cleaning "out the flues without taking down the pipe, and in the introduction of a cast-iron perforated fire-back or shield in the fire-"pot with a view of allowing of the air to pass up from behind, "increasing the draught, protecting the fire-pot, and permitting "the fire-back to be replaced when burnt out without removing "the fire-pot."

[Printed, 10*d.* Drawing.]

1862.

A.D. 1862, January 1.—N° 16.

NEWTON, WILLIAM EDWARD.—(*A communication from Edward Fielding Woodward.*)—(*Provisional protection only.*)—" Boilers " for culinary purposes."

" This invention consists, first, in combining a convolute or " coiled tube with a boiler, central tubes, and perforated food " holder or receptacle, so that when heat is applied to the " apparatus or device, and the water commences to be heated, a " circulation or current will be formed within the boiler, and the " water very expeditiously heated and boiled, while the substance " or material to be boiled or decocted will be disposed in the " most advantageous manner in the current of water to favor " the cooking or extracting process.

" The invention consists, secondly, in using in connection with " the boiler a coiled tube and food holder or receptacle aforesaid, " one or more supplemental chambers or vessels placed under " and over the other, and communicating with each other and " the boiler by means of a tube or tubes, constructed and " arranged to favor the ascent of steam or heated air with the " supplemental chambers for warming or cooking articles of food, " and at the same time serve as a means to keep the cover or lid " of the receptacle or boiler in proper position."

[Printed, 4*d*. No Drawings.]

A.D. 1862, January 6.—N° 43.

BROWN, FREDERICK.—" Kitchen ranges."

A boiler is placed at the side of a range, and flues after passing under and over the boiler, are conducted in a similar way about an oven beyond. A similar arrangement may be applied on each side of the grate, and a third boiler may be applied behind the fire and projecting forwards into the lower part of the back of the fire-place.

[Printed 8*d*. Drawing.]

A.D. 1862, January 9.—N° 60.

SMITH, JAMES, and WELLSTOOD, STEPHEN.—" Cooking " stoves."

In the stove described, the oven "has its front side against the "the back of the fire-box." It has a door at each side, and at back, top, and bottom, it is surrounded by flues. The doors, and any part where there is no flue, are made double, and the internal lining is of bright metal to avoid loss of heat by radiation. The outer sides of the flues may be similarly protected. A "light "cover or hood" is fitted to cover the top of the stove, and the vessels on the hot plate. A tube leads from the upper part of this hood to the chimney, to carry off the fumes of cooking.

"Contractors" are fitted for the smaller cooking vessels. These "fit into the top plate" of the range, and "are formed with "sunk sides projecting down into the fire-box with a supporting "flange at the bottom upon which the pot or pan rests." The usual oval opening in the hot-plate is provided with moveable pieces by which it may be contracted into one small hole at the centre.

[Printed, 8*d*. Drawing.]

A.D. 1862, January 13.—N° 100.

MAY, CHARLES NEALE.—(*Provisional protection only.*)—"Manufacture of pastry."

The crust is baked separately from the interior of the pie. The dough is placed in a metal form of suitable shape and baked in it, the remainder of the pie being baked in a dish as usual. The plate holding the dough may be supported by short legs, and it may thus be supported over the dish, so as to occupy no extra room in the oven. By this method the crust does not sink in or lose shape in baking.

Or the pie may be made in the usual way, and metal supports placed within it. These supports are of two discs of metal united through their centres by a stem. One disc serves "as a foot rest," the other supports the paste.

The separate crusts are fastened on by the juice of the pie or by "other adhesive matter."

[Printed, 4*d*. No Drawings.]

A.D. 1862, February 6.—N° 313.

RUSSELL, ROBERT.—(*Provisional protection only.*)—"Stove-"grates and kitchen ranges."

The first part of the invention relates to fire-places for warming rooms.

The second applies to kitchen ranges, in which, "the oven may "be formed of either cast or wrought iron, and the bottom "part thereof is raised from four to six inches above the level "of the grate on which the fire burns. This space is divided "into two compartments by an iron or brick flange or division "extending from the opening into the fire diagonally across "towards the back, one compartment communicating with the "back flue and the other with the side flue of the oven, and "thus the heat is equally divided. A continuation of this flange "or division is carried up the side and back of the oven towards "the top where the two flues join and form into one leading "into the chimney."

[Printed, 4*d*. No Drawings.]

A.D. 1862, February 11.—N° 356.

WOOD, William.—"Pomfret or liquorice cakes."

A paste of flour is made and boiled. It is then placed on a heated table with a rim round it, over which rollers and scrapers work. On this table the liquorice extract is mixed with the paste, the machinery employed being the same as that used in making chocolate. When no flour is used, the liquorice extract, sugar, gum arabic, and other materials are placed at once on the table without being boiled. When sufficiently mixed, the paste is rolled into sheets which are passed to the stamping machine.

The sheet is rolled on a drum, from which it is supplied to pressing and lubricating rollers, and thence to a stamping roller. This stamping roller is fitted with dies working in apertures round its circumference, and kept flush with the surface by springs. The paste is forced into these by pressure from an elastic roller, or from a roller with corresponding dies upon it. Arrived at the lowest point, the dies are pressed out by an eccentric or a fixed piece within the roller, and the formed cakes detached by a revolving brush. In another machine the sheet of paste is fed with an intermittent motion between a pair of stampers, which stamp the required shape on it. A cutter follows, and cuts out the stamped portion, dropping it through a perforated plate below. Figuring rollers and cutting stamps may also be employed in the same machine.

[Printed, 2*s*. Drawings.]

A.D. 1862, February 19.—N° 442.

TURNER, James.—(*Provisional protection only.*)—"Machinery for mixing, mincing, and pounding."

"Motion is imparted to a cross-head by side levers and two sets of cogged or toothed wheels. Two of these are keyed on to a horizontal shaft, supported by a frame, the other wheels being connected with the levers. A mixing receiver surrounded by a toothed band and supported by a frame capable of being tilted is situated beneath the cross-head, and is made to revolve on a centre point by a screw in the shaft. The whole may be fixed to a bench or dresser by a clamp or other means. The instruments or utensils used may be attached to the cross-head aforesaid, and be either fixed or free, as the case may be. A block can be placed on the top of the receiver in conjunction with the mincing knives, and for pounding a pestle or plunger may be substituted; the block may be replaced by a mortar with a revolving bottom, with interstices or small holes for the material to drop through. For mixing, either whisks or a spatula can be fixed to the cross-head, which gives it a to-and-fro motion within the mixing receiver. The whole is put in motion by a handle on the shaft."

[Printed, 4*d*. No Drawings.]

A.D. 1862, February 25—N° 512.

KINGSFORD, Courtenay.—"Composition for the manufacture of bread."

The composition is intended to be used as a fermenting agent.

The proportions as given in the final specification are:—

Tartaric acid	25½ oz.
Bicarbonate of soda	27 oz.
Common salt	14 oz.
Flour	196 lbs.

and "in some cases" "a small quantity of ground rice."

In the provisional, the proportions are:—

Tartaric acid	16 oz.
Bicarbonate of soda	25 oz.
Ground rice	33 oz.
Common salt	13 oz.
Flour	196 lbs.

The proportions may be varied, and carbonate of soda, potash, or ammonia may be substituted for the bicarbonate of soda; also citric acid or bitartrate of potash for the tartaric acid. In the Provisional Specification it is stated that for any of the above ingredients may be substituted "any other substances that will, on the addition of moisture, slowly yield carbonic acid." Also, that if a "wholly volatile salt (such as carbonate of " ammonia)" is used, it is added in the proportion of 1 to 100 parts by weight of flour.

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 12.—N° 673.

GONDOLO, PAUL.—"Baking oven."

The oven is heated below by a retort, burning coke by preference. It has metal flues circulating under the oven and communicating with a space surrounding the oven. There is no brickwork in the flues or space round the oven. The oven is a closed chamber of metal or brickwork, and there is no communication between it and the flues. Suitable dampers regulate the heat and its direction. There is no chimney, but a valve is made in the lower part of the air space, to allow the carbonic acid gas generated by combustion to pass off. Several ovens may be superposed, one above the other, and be heated by the hot air, etc., passing from one to the other. To obtain steam for actuating mechanical kneaders, etc., heating tubes may be arranged in convenient places. They communicate with a "reservoir" furnished with a safety valve, etc.

[Printed, 1*s*. Drawings.]

AD 1862, March 14.—N° 710.

TURNER, WILLIAM.—(*Letters Patent void for want of Final Specification.*)—"Bakers' ovens."

The oven has doors "extending the entire width thereof." These doors are hinged at top to an iron bar. They may open and shut together or independently. The furnace doors are "in " a parallel or nearly parallel line with the oven doors" and the flue is at the opposite end of the oven to the furnace. The floor is made of fire-brick, etc. At each side is a ledge to prevent the wheels of the carriages from touching the sides of the oven. Rails may be used, and the wheels flanged to run on them. The carriages may be "suspended from the axles of the wheels, " instead of being supported by them," and "metal skeleton carriages," adapted for holding the tins, etc., which contain the bread may be used. These tins may have wood or other bottoms, which may be withdrawn before the baking begins.

[Printed, 4*d*. No Drawings.]

AD 1862, March 17.—N° 732.

BOWSER, William.—"Ships' fire-hearths."

Improvements upon No. 10,576, A.D. 1845.

"The apparatus is of a rectangular form in plan, having "ordinarily three boilers of different sizes at one side heated by "means of a fire-grate directly beneath them, whilst at the "opposite side there is formed a cooking range with a separate "fire-grate and hot plate, and an oven or ovens occupy the middle "portion, their doors being in the remaining sides." The flue from the cooking or range grate is, "according to one modifi-"cation, made to immediately descend from the top of the grate "down between the grate and the oven, and to pass thence under "the oven, and, finally, to the uptake or chimney."

"In another modification, whilst the flue is applied to the "oven in the direct manner already described, there is intro-"duced, in addition, a boiler to receive heat from the fire, such "boiler having a part rising up a short distance between the "grate and the first descending part of the flue, and passing "under the horizontal part so as also to receive heat from that "part of the flue. The steam generated in this boiler may be "conducted by pipes to cooking vessels mounted on a light "frame at a sufficient height above the hot plate to leave the "latter clear. The gate for heating the boilers is provided with "an adjustable partition piece to permit of contracting the fire "space when only one or two of the boilers are in use. The "flue from the boiler grate passes inwards under the boilers, "and a short distance up along their inner ends, whence it is "continued downwards in a box or division at one side, and "passing round and under the oven, finally unites with the flue "from the cooking or range grate. The apparatus may be made "with flues similar to those hitherto employed, and dampers or "other contrivances may be used for diverting the fire gases "from either grate into whichever series of flues may be desired."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, March 22.—N° 802.

JENNINGS, Josiah George.—"Manufacture of biscuits."

The biscuits are made hollow and kept so during baking by the insertion of a piece of metal or other material. The following description is given of the process of manufacture :—

"I prepare a biscuit paste in any ordinary manner and roll it "out to a suitable thickness; I then cut it up into strips about "one inch wide, these I wind spirally on a roller, the circumference of which is about the same as that of the hollow to "be left in the biscuit. I wet the edges of the strip of paste "where they overlap and roll it till the edges adhere, in this "manner I prepare a tube of paste which when baked will not "open at the joints so as to disfigure the biscuits. The tube "of paste I cut into lengths by running the roller over a surface "with projecting ridges at suitable distances apart, these lengths "are slipped off the roller, and then by preference flattened into "a long oval form. I then introduce into each piece a filling "piece which is best made of glass, the filling piece does not "project entirely through the tube of paste, but this is closed at "one end beyond the end of the filling piece either by another "piece of paste or else by pinching in the end of the tube so as "to close it. The biscuits with the filling pieces within them "having been suitably stamped are baked, and afterwards the "filling pieces are withdrawn."

To fill these biscuits with minced meat, a mincing machine is used which has a nozzle of the form of the hollow of the biscuit and of the same length. Each biscuit is placed on the nozzle, and as it is filled it is pushed off.

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 28.—N° 867.

LUCETTI, ANTONIO.—(*Provisional protection only.*)—"Apparatus for expressing the juice from pulpy fruit."

"This invention relates to a peculiar construction and arrangement of apparatus for expressing the juice from lemons, oranges, "and similar pulpy fruit, and consists in the employment for "that purpose of a pair of jaws, the lower jaw being hinged to "the upper jaw whilst the upper jaw works on a fixed centre and "is acted upon by a lever handle, which, when depressed, causes "it to squeeze the fruit upon the lower jaw. The inner surfaces "of these jaws may be more or less roughened, grooved or "corrugated, and the expressed juice is received into an inclined "spout which directs it into any convenient receptacle. A spring "is applied for the purpose of opening the jaws on the release

" of the pressing handle. The entire apparatus is proposed to " be mounted upon a vertical standard which is fixed into a table " or other convenient support."

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 29.—N° 882.

BAKER, JOHN.—(*Provisional protection only.*)—" Improved " alimentary preparations."

The description is as follows :—

" My improved alimentary preparations consist first of a con- " centrated preparation of beef tea. I reduce the beef by stewing " in a sufficient quantity of water in the ordinary way of making " beef tea, but adding to each 112 pounds of beef, about 2 pounds " of the best Jamaica sarsaparilla. The whole being reduced " sufficiently to extract the nutriment from the beef, I then strain " the beef tea from the fibre and reduce it again by boiling " or stewing, until the quantity remaining is only about one- " sixth part or one-seventh part of the original weight of the " meat; it is then to be put in jars or close cases, in which it sets " and becomes a firm hard jelly or substance. It should be " covered so as to exclude the air, if intended to be kept for any " length of time.

" The second part refers to the preparation of a vegetable " extract which I prepare from Carrageen moss. I boil or stew " the moss in water to a thin jelly, and then strain off the fibre. " I now reduce it to such consistence that it will set hard when " cold, during which reduction I add about 7 or 8 ounces of " sugar and one ounce of brandy to every pound of the extract. " I add the sugar some little time before the boiling is complete, " and the brandy just previously. I also add hay, saffron, or " crocus to give it an agreeable color, and then pot and cover " it to exclude the air, or enclose it in air-tight cases."

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 31.—N° 887.

MENNONS, MARC ANTOINE FRANÇOIS.—(*A communication from Martial Victor Jouannet.*)—(*Provisional protection only.*)— Manufacture of glucose.

The glucose is obtained from " carob beans." It is used amongst other purposes in confectionery. The process of extraction is described in the following words :—

"1stly, reduction of the fruit to a state of fine division by means "of graters or other appropriate mechanism."

"2dly, digestion of the reduced matter for twenty-four hours, "at a temperature of sixty degrees centigrade (140° Fahrenheit), "in water five times the weight of the mass and hydrocholoric "acid one thousandth part in weight of the water employed."

"3dly, neutralisation of the acid reaction in the digested "matter by the addition of an alkaline carbonate (carbonate of "soda, potash, or lime for instance) in such proportions as may "be required."

"4thly, filtration of the mass. The object of this process is to "separate from the liquid, not only the undissolved parts of the "fruit, but also the nitrogenized elements dissolved in the "digestion, and afterwards reduced as an insoluble precipitate "by the neutralisation of the acids."

"5thly, clarification and concentration of the filtered liquid in "the ordinary way."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 1.—N° 911.

TURNER, William.—Kneading machine.

Above the kneading trough is a frame which carries two cranked axles, revolving in opposite directions. From the cranks an up-and-down motion is given to two vertical bars working through slots. These bars have transverse arms which are thus driven up and down through the dough to knead it. These arms are formed so as to pass between one another as the machine works. One shaft only may be employed, and any other means for giving the requisite motion to the mixing arms may be used.

The feeding apparatus described in the Specification of No. 741, A.D. 1860, may be employed with this machine.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, April 4.—N° 969. (* *)

NOCK, John, and PRICE, William Kirby.—(*Provisional protection only*.)—"Gas cooking ranges."

The invention "consists in lining the inside of such ranges "with glazed tiles or slabs placed at a slight distance within the

" outside casing. The effect of this is that a much higher " temperature can be obtained with a smaller consumption of " gas, the tiles reflecting the heat inwards, whilst the space " between the tiles and the outer casing keeps the latter cool."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 7.—N° 984.

WELCH, Edward.—Ovens and kitchen ranges.

Brick ovens are made with an iron floor, under which is the furnace. Several ovens of this sort may be placed over one fire. The products of combustion after circulating below the oven, pass into a metal tube within the oven and communicating with the chimney.

In kitchen ranges the sides of the fire-place are of fire-brick. The top and bottom of the oven are formed each of an iron plate. The other sides of the oven are formed of the brickwork in which the range is set. The ash-pit is closed, so that the products of combustion pass downwards under the oven through a metal pipe fixed in the oven, to a space between the top of the oven and the hot plate.

[Printed, 8*d*. Drawing.]

A.D. 1862, April 7.—N° 986. (* *)

NICHOLSON, William Newzam.—(*Provisional protection only.*)—" Ranges and stoves."

The invention " consists in forming the fronts, panels, and " doors of kitchen ranges and the panels of stoves of enamelled " iron."

It " also consists in means of fixing such enamelled iron by " forming frames in cast-iron plates, and fitting the enamelled " iron therein with screw or rivet fastenings; also in casting " hollow projections in the cast-iron plates, for the purpose of " screwing therein taps or other necessary appliances. The " enamelled iron plates have apertures formed therein, previous " to being finished, to fit over such projections."

It " also consists in an improved form of hinge for the doors " in kitchen ranges." The inventor casts " a hollow boss with " and extending nearly the whole length of the door."

[Printed, 4*d*. No Drawings.]

A.D. 1862, April 9.—N° 1008.

FARRON, Squire.—Regulating the supply of steam to engines, etc.

A cylinder closed at bottom has within it a piston exposed to the pressure of the atmosphere, and acted upon by a lever and weight. The steam, gas, or fluid is admitted to the cylinder by "two internal apertures, and passes into the interior of the piston "through two corresponding apertures and from thence through "a larger aperture to the exit pipe" of the cylinder, and so to the engine, etc. At the front of the larger aperture of the piston "there is a thoroughfare leading to the under side of the piston," so that the steam etc., raises it according to its pressure. When the apertures of the cylinder are fully open to those of the piston the supply is at its maximum. As the piston rises, the apertures are partially closed, and the supply is diminished.

The invention may be applied, in a manner not specially described, to "cooking apparatus."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1862, April 21.—N° 1161.

ATTWOOD, Thomas.—"Kitcheners."

The oven door is in two parts, and the hinges are so made that the door when open stands out at right angles to the front of the oven. On the insides of the door are ledges corresponding with the ledges on which the oven shelves rest, so that the shelves can be drawn out of the oven. Or the door may be in one piece, and the shelf have a projecting piece behind, which supports it when it is drawn out. The "lower flue stop and the bottom "plate of the oven" are made of one and the same piece of metal. This improves the conduction of heat. The fire-door slides instead of being hung on hinges, and passes laterally in front of the boiler.

[Printed, 6*d.* Drawing.]

A.D. 1862, April 22.—N° 1169.

ELLIOT, Charles Earp.—(*A communication from Messrs. Georg Grossberger and Hermann Christian Kurz.*)—(*Provisional protection only.*)—"Preparation of dried yeast."

"Fresh thick sub-fermentative yeast is taken and stirred up "with twelve times as much water, and is then dried with a "cloth, used as a sieve, into a clean vessel, it must be allowed "then to settle well, and the water has then to be poured off. "The sediment is again mixed with water, and the same operation "is again twice repeated. After the third draining a beautiful "white yeast is found as a sediment at the bottom of the vessel. "This latter sediment is then to be stirred up with some purified "carbonate of soda or potash and rectified spirit, using ⅛th of an "ounce of alkali to one pound of sediment, and ⅜ths of an ounce "of rectified spirit, and is then left to stand quietly for half an "hour, and afterwards is poured into sacks and pressed dry. "Half an ounce of gelatine is then added to every two pounds "of yeast, the gelatine is boiled into a solid mass, and is mixed "after it has become almost cold, first with one pound of yeast, "and after proper kneading is thoroughly mixed with the other "pound of yeast, and is rolled up into a stick, which is then "exposed for from 10 to 12 hours to a cold temperature. After "the lapse of this period the union has taken place perfectly, "the stick is unrolled and cut with a glass knife into any form "desired, and the pieces themselves are dried on frames covered "with a cloth in ordinary temperature."

[Printed, *4d.* No Drawings.]

A.D. 1862, April 30.—Nº 1275. (*

OXLEY, James.—"Apparatus for cutting and chopping bread "and other substances."

Amongst the substances to be treated are mentioned cheese, suet, and vegetables.

The visible parts of this apparatus are (1) a base, (2) a cutting table with a removeable top, (3) a knife jointed at each end to a link which works on a centre in the base (one link is provided with a handle), (4) an upright having in it a vertical guiding slot for the knife to work through, (5) a gauge pin jointed to the handled link, "its forward end working to-and-fro through a "slot" in the upright, and (6) a feed plate screwed to a metal plate, which slides in a groove inside the table, and to which is attached a hinged catch "for the purpose of retaining it by "abutting against the edge of the table or against a piece of

" metal screwed thereto." The thickness of the cut is regulated by making a screw thread on the pin which connects the gauge and link, and " a corresponding internal screw in the base of the " gauge arm." The feed plate is provided with a handle at its back and with spikes in front. The table has inside it a helical spring or springs communicating with the slide, and " to allow " of a long traverse of the slide with a comparatively slight ex- " tension " of the springs, and " to compensate for their variable " power at different degrees of extension," it is proposed to connect them by means of a cord and a fusee and barrel " both " fast on the same axis." The cord from the springs passes round the fusee, and the other, which is attached directly to the slide, is wound round the barrel. The tension of the springs is regulated by a stationary screw and a travelling nut, to which the springs are secured. The portion cut off is pushed away by means of an inclined ridge on the blade. The gauge and " the self-acting feeding mechanism " may be dispensed with, the article to be cut " being led forward by the hand of the " operator."

Modifications :—1. The end link " is replaced by an inclined " slotted bracket " which is fixed to the base or side of the table; a pin passed through the end of the knife slides in the slot, and the fulcrum of the link to which the front edge of the knife is jointed " is brought nearer the front by the base plate."

2. The table " may be made to travel under the knife after each " cut," and if required for chopping or mincing it " may be made " to rotate." The apparatus may be worked by a treadle.

[Printed, 10*d*. Drawing.]

A.D. 1862, May 2.—N° 1291.

HUNTINGTON, WILLIAM, and HUNTINGTON, THOMAS.— " Machinery for the manufacture of bread."

Several troughs are used. They are fitted with castors " mounted " on the ends of crank-arms or beams, or their mechanical equi- " valent, in such a way that the troughs may be elevated upon the " wheels or castors." These troughs are filled with materials for dough-making, and placed one at a time upon a reciprocating platform, below a pair of rotating transverse shafts. Each shaft has an arm at right angles, which carries a series of horizontal bars. The bars on opposite arms alternate with one another. By the revolution of the shafts the dough is kneaded. When the dough in one trough is finished another trough is substituted for it. The trough is traversed to and fro below the kneaders, and has rounded ends, so that all the dough is acted upon. Flour is supplied from a hopper above, the discharge orifice of which is fitted with a fluted roller. The trough might be fixed, and the kneading apparatus made reciprocating, but the first arrangement is preferred.

[Printed, 8*d*. Drawing.]

A.D. 1862, May 19.—N° 1516. (* *)

MORRIS, Timothy, and **WEARE**, Robert, and **MONCKTON**, Edward Henry Cradock.—" Obtaining and applying light " and heat by electricity."

To obtain heat, electricity evolved from powerful batteries is used, by introducing into the liquor or substances to be heated spirals of flattened platinum or other metal wire, or metal sheets rolled in volute spirals, or disposed in such manner as to afford the greatest possible amount of heated service, the ends of the coils or sheets or spirals being joined respectively to the poles of the battery. The heat thus produced may be applied for cooking purposes.

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 13.—N° 1765.

IVES, Julius.—(*Provisional protection only.*)—" Apparatus for " expressing juice from fruit."

Rollers are used, between which the fruit, etc. passes. These rollers are elastic, of solid vulcanised india-rubber or other suitable compound, on a metal spindle. The rollers are geared together, and one of them is actuated by a handle. The bearings of the spindles are in slots, and the spindles are kept in position by suitable springs, preferably of india-rubber. The rollers may be side by side or vertical, and the fruit, etc. may be fed in from a hopper or otherwise. Several pairs of rollers may be arranged, so that the fruit, etc. passes through them all in succession. A vat to receive the juice, and a table for the refuse, are to be suitably arranged.

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 24.—N° 1851.

CARR, Thomas.—Machine for grinding, kneading, etc.

The machine is applicable to a considerable variety of purposes, amongst others for kneading dough.

"Edge runners" or mill-stones supported radially over a revolving bed, have independent motion given to them, instead of their merely revolving from the friction of the bed. This motion may be either faster or slower than that of the bed. The "edge runners" are supported at their ends on bearings which can be raised and lowered by means of a screw. The surface of the bed and of the upper stoves may be grooved, or teeth may be fitted upon them. Weights or springs may also be applied to the levers upon which the "edge runners" are mounted, so that the pressure can be either increased or diminished.

[Printed, 3*s.* 6*d.* Drawings.]

A.D. 1862, June 25.—N° 1869.

TURNER, George.—"Mincing apparatus."

The machine is of the usual sort. It is made of two castings hinged together, and secured by a latch, so that the barrel can be opened and the propeller removed. The novelty consists "in the application to such machines of a moveable plate "for forming a second bearing for the spindle of mincing machines of the ordinary construction, such plate being secured "in its place by means of two screws or pins, one of which is "inserted in the upper part of the casing of the machine, and "the other in the lower part of such casing, slots being formed "in the moveable end plate for the purpose of embracing such "screws or pins. An aperture is made in the moveable end "plate to allow of the exit of the minced material as it is forced "out of the machine by the action of blades formed on the "revolving spindle, which is in the ordinary way."

[Printed, 10*d.* Drawing.]

A.D. 1862, July 2.—N° 1929.

ATKINSON, Thomas Lamb.—Stew-pans.

The invention "consists in forming the boiler or stew pan with "an inner lining, within which is placed the articles to be cooked. "The space between the inner lining and the outer holds the

" water, which is introduced through the hollow handle, this " being closed by a plug; the steam from the water enters into " the interior through one or more holes formed in the upper " part of the inner lining;" by means of the steam thus introduced whatever is placed within the stew-pan or boiler " is cooked " more speedily than by immersing the materials in water, at the " same time retaining the flavor."

[Printed, 6*d*. Drawing.]

A.D. 1862, July 3.—N° 1941.

EDMUNDS, Thomas.—(*Provisional protection only.*)—" Preparing compressed fruits in cakes."

The invention " relates to the manufacture of compressed fruit " in cakes, such as figs and almonds, or other dried fruits, mixed " or otherwise;" and the " improvements consist in the application " of a surface of confectioners' wafer material on the top and " bottom of such cakes, which material may also be applied at " other parts of the exterior of such cakes, and which may be " embossed, impressed, or otherwise ornamented. This appli- " cation of the wafer material not only improves the appearance " of the goods but preserves them in better and more presentable " condition." " The wafer material " is applied " at the time of " compressing," and it adheres firmly to the cakes.

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 18.—N° 2052.

MORRILL, Oscar Fitzalan.—" Apparatus for generating " heat for culinary or various other purposes."

Vaporised hydrocarbon is mixed with air in a receptacle covered with a perforated cap over which it is burnt. The liquid hydrocarbon is supplied by a wick from a reservoir and led in a tube which is bent through the flame to be vaporised. The tube conducts it in this state to the bottom of the mixing chamber which is open at the bottom. Over this lamp is a stand fitted at top with a cover, and with rings fitting one within the other, so that the aperture at top may be varied to suit the size of the cooking vessel in use.

A " steak broiler " is described. It has bars above, and a gravy trough round it below. In the centre is a plate upon which the flame plays, so that the heat is distributed. On the plate are projections to raise the meat from it.

An oven with an external air casing may also be employed. The flame of the burner may pass directly into the oven.

[Printed, 8*d*. Drawing.]

A.D. 1862, July 18.—N° 2056.

BROOMAN, Richard Archibald.—(*A communication from William Elijah Hagan.*)—" Generating heat in furnaces."

The invention consists in bringing superheated steam in contact with burning fuel " at any point in the fire above the grate bars." It can be applied to furnaces and fire-places of all sorts. Amongst other applications, a cooking stove is shewn. On two or more sides of the fire-place is a chamber in connection with a steam generator. From these chambers superheated steam passes through small holes in the chamber wall to the fire where the steam is decomposed, and the resulting gases are burnt.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, July 25.—N° 2112.

ANDERSON, James.—Separating gluten from starch, and preparing it for food.

Wheat, flour, and water are submitted to the action of a revolving shaft with arms in a trough. The arms are inclined, and there are inclined bars across the trough, between which the arms work. Jets of water play upon the dough, and wash away starch, while the arms carry away the gluten. The water may be warmed up to 140° Fahr. The gluten is heated till it congulates and becomes firm ; this may be effected by placing it in shallow pans surrounded with hot water above 150° Fahr., or by steaming. The gluten may be pickled, or merely dried. It may then be ground up into flour. It may also be mixed with animal flesh or vegetable matter. " Imitation potted meats may be made of " the gluten by treating it precisely as in potting ordinary flesh, " and various flavours may be imparted to it by combining with " it suitable ingredients."

[Printed, 4*d*. No Drawings.]

A.D. 1862, July 28.—N° 2133.

FAVRICHON, Theodore Antoine.—Ovens.

The oven has its floor inclined forwards with a fall of about two inches. In the centre of the arched roof is a pipe of diameter increasing upwards. This communicates with a cross pipe leading to the chimney "which is divided by a partition or tongue to a "height of about four feet." By means of registers in these pipes the heat of the oven can be regulated. A smaller oven communicates with the larger oven by means of a register, so that the heated air etc., can be turned into it.

Another arrangement consists "in placing about twelve inches "on each side of the mouth of the oven, and along its edge two "pipes communicating by a conduit to feed the draught, which is "tempered or destroyed at will by means of two registers."

"The excess of heat in the oven may be utillized, in con-"centrating it by means of the two above mentioned registers, "and the establishment of another on the conduit."

"To preserve the heat in the oven with the least possible loss, "the iron plate, which closes the oven, has an opening in the "middle; this opening has a door, divided into three com-"partments; it is entirely opened for the introduction of large "loaves, and closed all but the third compartment, while smaller "loaves are being put into the oven; this door is provided with "a glass panel, in front of which is placed a lamp."

[Printed, 10*d*. Drawings.]

A.D. 1862, July 29.—N° 2150.

NORRIS, JAMES.—Ovens.

Below the oven is a narrow space or chamber deeper in the centre to receive the fire-box. This chamber is preferably of cast iron. In the upper part are openings over which flues are fixed. These flues pass beside the oven, and if preferred, through its centre, dividing it vertically into two separate parts. They unite over the top of the oven, and the surplus heat may be used for heating water, etc. There is an air space between the flues and the sides of the surrounding chamber. Suitable apertures are provided for admitting air. The oven is provided as required with shelves.

[Printed, 6*d*. Drawing.]

A.D. 1862, August 30.—N° 2408.

LE CONTE, FELIX.—Steam boiler furnaces.

The object of the invention is to produce currents of air through openings in the furnace bars. The bars are quadrangular in section with two longer sides forming an acute angle, and two shorter, forming an obtuse one. The acute angle is directed downwards. In the larger sides are cavities which have contracted orifices in the smaller sides. The bars may be triangular instead of quadrangular. The orifices alternate on each side of the bar. The Provisional Specification states that in the furnaces of bakers' ovens all the orifices open the same way "fronting the "draught." It also refers to a "funnel system" for conducting air to the fire, but this is disclaimed in the Final Specification.

[Printed, 8*d*. Drawing.]

A.D. 1862, September 6.—Nº 2460.

HUNTLEY, SAMUEL HAZARD.—"Cooking apparatus."

There is a casing of wrought iron, the lower part of which contains the fire-grate. Above the grate are boilers "formed with "sloping sides, so as to meet in the middle of the casing over "the fire-grate, and yet to leave a space above between them." The bottoms of the boilers incline outwards and downwards, so as to leave a flue. Above the boilers are ovens, of less width than the boilers, so that a space is left, with apertures for the reception of cooking vessels. The flue passes under the boilers up the back to the back of the ovens, where it divides, and is led forward on either side, to unite again in front, and pass over the top of the oven to the chimney.

To adapt the apparatus for use in the field, it is mounted on wheels and a box added, which serves for a store, and on which the driver sits. The casing may be covered with felt and wood, to avoid loss of heat. There may be a separate fire-place below each boiler, the flues uniting as before. In use the wheels may be removed, and the apparatus mounted on brick tiers or mounds of turf.

When the apparatus is used in a permanent position, the iron casing is surrounded with brickwork, or dispensed with altogether. Two or more apparatus may be combined.

For use on board ship, a hot-plate is attached to the back, the flue from its fire-place leading into the main chimney.

[Printed, 1*s*. Drawing.]

A.D. 1862, September 17.—N° 2553. (* *)

DOUGLAS, JOSEPH.—" Close fire ranges."

" Instead of placing the register or plate which separates the " chimney from the fire-place in which these ranges are placed at " the level of the breast of the chimney-piece," it is placed " some " eighteen inches or two feet above that point, that is to say, so " as to form an enclosed space of the expanded mouth of the " chimney, which is, however, open below, and extends over the " area of the range." There is " a register valve or opening in this " plate, but which is usually kept closed, not being required " for the purposes of my invention." From this plate a metal or other tube is carried up the chimney, " say, of two or three " inches in diameter, and some ten or fifteen feet long; this " may be enlarged towards the bottom. Any effluvia arising " from the range, or from the cooking in the kitchen or chamber " in which it is situated, collects in the space before-mentioned, " which is in communication with the tube in the chimney, and so " passes thence by the tube, and escapes directly up the chimney."

[Printed, 8*d*. Drawing.]

A.D. 1862, September 29.—N° 2635.

BAUCHARD, JULES CÉSAR PRUVOST. —" Twice-transversal " kneading trough."

The " improved kneader is a horizontal machine formed of " two rectangles carrying a certain number of blades curving in " opposite directions, that is to say, crossing in the centre and " at the ends, so that no part of the dough may escape kneading. " Two cranks fitted to two fly wheels command two pinions, which " by another on the framing and intermediate gearing toothing " into a wheel, the axle of which carries the rectangles, transmit " motion to the kneader. An Archimedean screw, fixed above " the kneader, receives from a hopper the flour to be kneaded, " and transmits it to the kneader; this screw receives motion " from the fly wheels by bands and pullies. The openings or " traps from the hopper to the screw are united by a rod, as also " those through which the flour falls into the kneader, in order " to regulate the supply. After an operation, the rectangles " carrying the blades are raised by a rack placed on a horizontal

" shaft beneath the trough, having a pinion at each end, and set " in motion by a cross-handled crank."

Printed, 10*d*. Drawings.]

A.D. 1862, October 14.—Nº 2761.

SMITH, Spencer.—(*Provisional protection only.*) — " Kettles, " saucepans, and boilers."

The invention " consists in having a tube or tubes of suitable " form from the bottom of the kettle, saucepan, or boiler, and " terminating at the back, sides, or any part that is most suitable." The inventor also makes an arch from the " bottom of the said " kettles, saucepans, and boilers, starting from the bottom, and " terminating at the back or sides," the " object being to boil " the water or liquid in detail."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 20.—Nº 2826.

JOHNSON, John Henry.—(*A communication from Anthony Pollak.*)—Night-light apparatus for cooking.

" According to this invention it is proposed to combine a vessel " or receiver for the liquid to be boiled or heated with a lamp or " gas jet or jets, in such a manner as to allow the chimney of the " lamp or gas flame to pass up the centre of the vessel, and be " surrounded by the liquid contained therein. The chimney may " be made either entirely of metal or the lower part thereof, " which is attached to the lamp or burner, may be of glass or " other transparent material; when composed entirely of metal, " a window or aperture is made in the lower part, through which " the light may shine into the apartment. A tap may be fitted " to the lower part of the vessel, for the purpose of drawing off " the heated liquid, or it may be provided with a pouring lip or " spout. In some cases an annular cup may be fitted into the " upper part of the vessel, so as to surround the top of the " chimney, for the purpose of containing infants' food, and a " tripod, or stand may be placed over the top of the chimney on " the lid of the vessel to receive a dish or plate in which meat " or eggs may be fried or warmed. The upper part of the chimney " is united to the lower rim of the vessel, so as to form one piece " therewith, which fits accurately over the lower portion of the " chimney immediately surrounding the flame, and is readily " removeable therefrom when desired. When used with a gas

" burner, an ordinary side bracket may be employed, with a " separate stout bracket above fitted with a ring for holding the " apparatus."

[Printed, 8*d*. Drawing.]

A.D. 1862, October 27.—N° 2891. (* *)

RIDGE, John James.—" Improvements in treating certain " farinaceous substances applicable to infants' or invalids' food, " and in apparatus to be employed therein."

This invention relates to " treating and imparting medicinal " properties to wheaten flour, oatmeal, indian corn, rice, or like " farinaceous substances, and obtaining therefrom a purer and " more nutritious food applicable for infants or invalids," and consists in subjecting such " substances to a roasting or drying " process contained within closed cylindrical vessels or chambers, " surrounded by and maintained under heat uniformly for about " six hours to the temperature of boiling water, steam, or other- " wise, suitable outlet pipes or passages in the apparatus being " provided for the escape of vapour or gases evolved during the " process." The ingredients thus prepared are to be rolled, sifted, and pounded until they have become perfectly smooth, when they are mixed with bi-carbonate of soda in the proportion " of two drachms to a pound of the cooked flour, to which also " half an ounce of powdered lump sugar is to be added, and " thoroughly incorporated therewith, when the whole is ready for " use."

[Printed, 8*d*. Drawing.]

A.D. 1862, November 3.—N° 2966.

TRACHSEL, Frederick, and CLAYTON, Thomas.—" Ob- " taining light, heat, and ventilation."

The specification describes improvements on No. 652, A.D. 1861, in which a method of rendering luminous various sorts of gas, etc. was described. The air or gas was forced by a bellows apparatus through a liquid hydro-carbon so as to become impregnated therewith. Improvements in the method of generating the gas are described, and also means of supplying it, and fans for supplying air to it. The gas may be employed for cooking apparatus by means of any convenient sort of burners, but no special apparatus for cooking is described.

[Printed, 1*s*. Drawing.]

A.D. 1862, November 4.—N° 2983.

HUNTLEY, Thomas.—" Kitcheners and kitchen ranges."

All parts of the range except water and steam vessels are fitted with " double parallel or dovetail flanges and tongues or single " lap over edge joints."

The fire-place is divided horizontally by a set of bars. These bars are hollow and contain water. They are connected with water spaces beside and behind the fire-place, communicating with the boilers. The upper compartment has a hinged or sliding bar, so as to give an opening for the supply of fuel. The bottom grate of the lower compartment slides up and down, and is held by " folding supports," " the feet of which " " rest upon notched " sleepers at the sides," or it may be raised by a rack. The front bars of the lower compartment may move with the bottom grate, or may be fixed. In the latter case a similar arrangement to that in the upper part is made for supplying fuel. Either grate, or the two together, may be employed.

Two fixed grates of similar construction and position may be employed. A space is left at the top of the back and sides of the lower grate which can be closed by dampers.

At the back of the range is a boiler connected with two " steam " boilers " which are also connected with each other. " One, two, " or more ovens, rosters, steamers, or boiling and steaming " chambers placed at the right and left of the fire-grates with " intermediate side, bottom, and top flues, the latter being " covered with a hot plate running over the whole." " Internal " pipes " may be fitted in the boilers, " through which the caloric " can pass." The ovens may be single or " double having a centre " flue." The front of the stove may be " advanced beyond " the chimney breast." The ovens are entirely surrounded with flues except in front. Dampers are fitted in the flues.

There are " steam chambers, in the top of one of which a boiler " is fitted for boiling purposes." The top of this forms a continuation of the hot plate. " Moveable grids with shallow drippers " or perculators " slide on ledges in the steam chambers. On these meat can be cooked.

[Printed, 10*d*. Drawing.]

A.D. 1862, November 8.—N° 3022.

KENT, George, and GRIFFITHS, Edward Paige.—"Apparatus for reducing cocoa berries and other vegetable and animal "substances to powder or pulp, and for mashing potatoes."

A vessel, preferably cylindrical in shape, is employed, at the lower part of which "there is formed a bottom or horizontal "partition, composed of angular blades, the cutting edges of "which radiate from a circle at the centre to the outer circumference of the vessel. The cutting edge of each of these "blades or cutters is so formed and fixed in respect to the back "edge of the next angular blade as to come slightly above the "back edge of the next blade, hence, when the nibs or broken "parts of the wasted cocoa berries are, as is hereafter explained, "driven round against the cutters, they will be cut, and the fine "cuttings or powder thus produced will pass through between "the spaces where the cutting edges of the cutters overlap or "rise above the back edges of the neighbouring blades. In the "central plate of the horizontal partition or bottom above mentioned is a bearing for an upright shaft or axis, on which is "fixed an instrument consisting of several inclined projections, "the lower surface of each of which comes in contact, or nearly "so, with the radial cutting edges of the angular blades above "described; such lower edges of the inclines do not radiate from "the centre of the axis or shaft, but are at an angle to the cutting edges of the blades; hence, when the axis or shaft is "caused to rotate, the inclined projections from the shaft will "cause the nibs or separated parts of the cocoa berries to be "carried round by the inclines, and by them will be pressed "against the cutting edges of the fixed angular blades. When "the apparatus is to be employed in reducing bread or other "vegetable substance, or to mash potatoes, or to reduce animal "matter which has been pounded or beaten in a mortar, or otherwise, a bottom is introduced into the vessel constructed of "woven wire gauze, in place of the angular blades. The upper "part of the axis turns in a bearing in the centre carried by a "frame consisting of three radial arms, which have hook-formed "ends which respectively pass under lugs or projections at the "upper edge of the vessel."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, November 10.—N° 3027.

LAVOINE, Jean Baptiste.—Cooking and generating gas.

A gas generating apparatus is attached to a kitchen range, termed "a gasiferous and caloriferous kitchen range." The range is fitted with "one or more stoves for roasting," and it is adapted for boiling several articles at the same time. "The "stoves may be heated by the fire in the range or by gas." There "is a large boiler," and "provisions can be kept warm for "any length of time without altering their properties."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, November 10.—N° 3032.

NEWTON, William Edward.—(*A communication from Victor Pierre Célestin Baud.*)—"Treatment of maize."

The principal object of the invention is to prepare the maize before it is ground by separating the farinaceous parts from the membranous husk, etc.

"The grain is steeped in water, rendered slightly alkaline by "the addition of carbonate of soda, or other suitable salt, after "which it is removed to another vessel in which there is a weak "solution of hydrochloric acid." The grain on being taken from the acid bath is to be dried and crushed by beaters or rollers, after which it is passed through a bolting machine to separate the farinaceous parts from the husk. The farinaceous parts are ground into flour. "The oleaginous and membranous parts are "then fermented by being steeped for several hours in warm "water, the result of which will be the production of a kind "of yeast or leaven."

[Printed, 4*d*. No Drawings.]

A.D. 1862, November 28.—N° 3196.

ADAMS, James, and WHITE, William Cornwell.—"Boiling and evaporating."

A metal pan with a false bottom is supported on trunnions. Inside it is a perforated tube, leading through one of the trunnions, by which steam or heated air is supplied. A second pipe leads from the bottom of the pan through the other trunnion and carries off the water of condensation.

When greater heat is required, superheated steam is used in a coil of tubing under the false bottom. Below the coil is a plate which reflects the heat on the bottom of the pan.

The pan is mounted in bearings on a lever, the other arm of which is connected with a spring balance, so that the weight of the pan and its contents is always known. "Flexible junctions" may be fitted on the steam pipe.

[Printed, 8*d*. Drawing.]

A.D. 1862, December 8.—N° 3286.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Alexandre Sezille.*)—"Kneading machines."

The kneading trough is of some length, and has on each side a rack, in which a pinion works. On the axle of these pinions is mounted a kneader consisting of a roller provided or not with radial arms. A wheel on the kneader axle gears into another wheel on a spindle passing across the trough, which has a roller upon it. The spindle is revolved by a handle or otherwise. When set in motion, the apparatus moves along the trough as it revolves, and thus all the dough is acted upon. The dough is pressed between the kneader and the second roller. Scrapers are attached which scrape the sides of the trough. The kneader is kept in position by a plate fixed to it which slides in a groove in the side of the trough.

[Printed, 8*d*. Drawing.]

A.D. 1862, December 9.—N° 3296.

MIRLAND, VICTOR.—Rhubarb preserve.

The fibres of rhubarb leaves are separated from the soft parts, and cooked in a boiler or steamed in a cage. The pulp is then put through a sieve, and evaporated in a flat pan with a double bottom heated by steam; it is meanwhile stirred with a wooden rake actuated by machinery or otherwise. It is then spread in layers three-quarters of an inch thick upon tinned plates. These plates are arranged on shelves in a drying room heated to between 140° and 170° Fahr. When sufficiently dry, it is laid on wooden hurdles and exposed to further heat. In this state the preparation may be stored away. It may have sugar or glucose mixed with it before it is dried, or fresh or preserved fruits may be mixed with it. "Aromatic essence," ginger, or spice, may also be added. It may be cut into lozenges. Full description is given of the apparatus required, with figures.

[Printed, 10*d*. Drawing.]

A.D. 1862, December 9.—N° 3299.

BROOMAN, Richard Archibald.—(*A communication from Frumence Nicolas Frezon.*) — (*Provisional protection only.*) — "Treating liquorice root."

The object of the invention is to obtain an extract from the root "without any apparent color," and without a "tart flavor."

The root is pulverised or chopped up, and the pieces soaked or washed. The water is then boiled to clarify it and strained in a woollen strainer. The liquid is "placed in a filter containing "animal black." It is then cooled into "a pretty firm mass." Or, after washing and filtering, the liquid has added to it a solution of citric or other acid, or "acid salts." This produces coagulation. When cool the mass is filtered and washed in cold water, and a little bicarbonate of soda added. The product may finally be dried.

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 10.—N° 3308.

LESAGE, Louis Amand. — (*Provisional protection only.*) — "Preparing jellies and jams."

The invention "consists in solidifying fruit jellies and jams by "means of apple juice, in moulds." The apple called "pigeonnet," is preferred. "The jellies and jams thus made can be differently "colored and perfumed with the required aroma, and are made "in moulds of any suitable material, which may have separa-"tions in order that the same jelly may receive different flavors "& colors. The quantity of apple juice to be employed varies "with the kind of fruit to be made up, but must be sufficient to "solidify the mass. When these jellies or jams have solidified "in the moulds, they are drawn out and served without the "moulds. In this way a new desert is obtained."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 11.—N° 3324.

IMRAY, John.—"Apparatus used for mixing and kneading."

The invention is thus described by the patentee :—"I mount "on a vertical axis a basin for holding the materials to be mixed

" or kneaded, which I make a portion of a spherical shell, and
" over this basin I mount in suitable bearings a horizontal shaft
" carrying arms, blades, or spokes, which I make straight or
" curved, and which I sometimes connect by transverse bands,
" according to the nature of the substances which are to be mixed
" or kneaded. I connect the vertical axis of the basin with the
" horizontal shaft by suitable gearing, so that on turning the
" shaft round in its bearings and thereby causing its arms, blades,
" or spokes to pass through the materials in the basin, the basin
" itself is also caused to turn round, and thereby to bring con-
" stantly new portions of these materials under the action of
" the arms, blades, or spokes; I prefer to arrange these arms,
" blades, or spokes helically around the shaft, so that they enter
" and leave the basin successively during the rotation of the
" shaft from which they project.

"To facilitate the emptying of the basin and cleaning of the
" shaft and its arms, I construct the framing of the apparatus in
" two parts, the lower part or base supporting the basin, and the
" other portion carrying the shaft and the intermediate gearing;
" and I connect those two portions of the framing together by
" joints, so that the upper portion with the shaft and its arms
" can be swung upwards and sideways to leave the basin clear
" and the shaft and arms exposed."

[Printed, 8*d*. Drawing.]

A.D. 1862, December 13.—N° 3342.

THOMPSON, Joseph John.—(*Provisional protection only.*)—
" Apparatus for making pies."

The inventor thus describes the apparatus :—

"I employ moulds of the desired shape of the pie, which
" moulds are placed in a press or similar apparatus. Into these
" moulds the paste is placed and rams are then pressed into it to
" form the hollow crust. The arms are then removed and the
" meat filled in, after which the top crust of the pie is applied,
" and another mould descending effects the required pressure to
" cause it to adhere and to impart any pattern required. I pro-
" pose making the moulds and also the rams in two or more
" pieces, so as to part, and thus admit of shapes being produced
" which would not otherwise leave them. The moulded pies are
" removed by the aforesaid parting of the moulds, or are thrust

" upward or downward. In cutting meat for pies I employ a " series of revolving blades, the edges of which are situate " within a grooved spindle, or I employ two series of revolving " blades, the one extending within the spaces of the other."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 24.—N° 3439.

CLARK, William.—(*A communication from Jean Marie Bibet, Emile Léger, and Antoine Faury.*)—" Improvements in the means " of applying heat to the feet in boots, shoes, and otherwise, part " of which improvements is applicable to other heating purposes."

Lighted charcoal is contained, in a manner described, within a hollow metal heel-piece. This charcoal " is termed carbon paste," but no specific instructions for its preparation are given. It is used for heating plates, kettles, " and all articles other than " ordinary fire-grates."

[Printed, 8*d*. Drawings.]

A.D. 1862, December 24.—N° 3443.

STEVENS, Ebenezer.—" Machinery for preparing dough."

The mixing vessels, of which there may be one or more, are mounted on wheels. They are semicircular at bottom, and double, so that there is a space for containing warm water or steam. They may also be heated by gas or otherwise, or they may, in hot climates, be cooled. These vessels may be brought under the stirring mechanism, and clamped in position. The mixers are composed of shafts carrying bent arms which are caused to revolve through the troughs. These shafts are moveable and fit into bearings on standards at the ends of the troughs. They may be driven from both ends, or one end may rest in a socket in the side of the trough. By means of a sleeve sliding upon the shaft, it can be driven at different velocities as required. Above each mixing is a hopper for supplying flour. Within this hopper revolves a shaft with blades on it of a T shape, to cause the flour to flow evenly from the hopper. The discharge opening is closed by a slide partly solid and partly of wire gauze, so that the flour may be dusted through the gauze, or poured freely out. Or the distribution of the flour may be rendered even by means of the vibrating board described in No. 121, A.D. 1861. A sieve capable of rotation by suitable gearing may be placed above the hopper. The mixing vessels may be fixed instead of moveable. To empty the trough, a "double scoop" is attached to two of the stirring arms, and this lifts up the dough so that it can be removed. There are various minor modifications, according to the size of the machine, which may vary considerably down to a small hand machine which stands on a table. The various machines are described and figured with great minuteness; there are twelve sheets of drawings.

[Printed, 6*s*. 8*d*. Drawings.]

1863.

A.D. 1863, January 2.—N° 13.

BAKEWELL, Frederick Collier.—(*A communication from Augustus Theodore Schmidt*).—Apparatus for burning oils, etc. as fuel.

" This invention consists in an arrangement of apparatus by " which oils and other inflammable fluids of less specific gravity " than water may be safely and effectually employed as fuel for " heating, cooking, generating steam, and for other purposes. " To effect this object the oil is burned on the surface of water, " through which it is supplied from an enclosed reservoir. The " vessel, which serves as the fire-box of a furnace, or as the fire-" grate of a fire-place or stove, is supplied with water through " a pipe leading from a separate reservoir, and the water is main-" tained at the required level by a governing stop-cock. The " pipe through which the oil is supplied rises a few inches above " the bottom of the fire-box, and a cover placed over the opening " of the pipe at a little distance from it distributes the oil as it " rises to the surface through the water. To facilitate the com-" bustion of the oil, the fire-box may be constructed in compart-" ments connected together, or air pipes may pass through the " fluids, so that air may be admitted to the top of the burning " oil. To prevent the danger that might arise from burning oil " in steam boiler furnaces in ships or in locomotive land engines, " the fire-boxes in such cases are supported on gimbals or on

" springs to keep them steady, and the splashing over of the oil " is further prevented by ledges projecting internally from the " sides of the fire-boxes as a further protection from danger. In " ships the bottom of the furnace is extended downwards into " the water contained in the fire-box."

Various arrangements are described, but none specially available for cooking purposes.

[Printed, 8*d*. Drawing.]

A.D. 1863, January 6.—N° 45.

VICARS, THOMAS, the elder, VICARS, THOMAS, the younger, and ASHMORE, THOMAS.—(*Provisional protection only.*)—Machinery for making bread, biscuits, etc.

Two kneading machines are described.

One of them "consists of a framing carrying two upright " shafts on which knives or beaters are fixed or disposed in a " helical or spiral direction, said shafts receiving rotary motion " through the agency of bevilled and spur gearing. There is a " table or platform connected to said framing, and on this plat- " form is placed a moveable trough or vessel containing the " materials to be mixed together. The aforesaid platform and " trough thereon can be either raised and lowered or have hori- " zontal rotary motion imparted thereto either in connection with " or independent of the vertical rotating shafts and bevilled " gearing before mentioned during the time of mixing said ma- " terials together into a dough or paste." The other mixing machine "consists of a trough supported by a suitable framing; " said trough, which may be either fixed or moveable, is furnished " with a shaft revolving horizontally therein, and around this said " shaft a system of knives or beaters are fixed and disposed in a " helical or spiral direction, motion being imparted to the afore- " said shaft and knives or beaters thereon, so as to mix and in- " corporate the materials placed in said trough into a dough or " paste to be afterwards shaped into loaves, biscuits, or other like " articles."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 12.—N° 94.

STEVENS, EBENEZER.—" Ovens, hot plates, and cooking ap- " paratus."

The oven consists of a chamber of fire-clay with an iron skin. This is surrounded by a similar chamber, an air-space being left between the two. Within this space are the flues. The fire is underneath and the outer case is cut away, so as to allow access from the fire to the oven. The draught is regulated by slides. The oven may also be heated by gas either inside the oven, or in the space between the casings. A thermometer is placed in the oven and projects so that the scale can be seen inside. The outer chamber may be lengthened and the additional part may serve as a hot-plate. On this plate a "compound vessel" may be used, consisting of an inner and outer vessel with a pipe connecting the two, through which steam passes from the outer to the inner vessel. The frying-pan is double, with a layer of fire-clay or sand between the two skins. The gridiron has fluted bars, and the end bars are also fluted, but more deeply than the others. The end of the handle is similarly grooved. A rim of iron all round forms a stand. There is a "sliding bolt under the handle," which rests on the bars of the grate. A baking dish is made double, to hold water; on it is a strainer for potatoes, and over this a stand on which the meat is cooked.

The oven may also be made of two concentric cylinders with shelves which divide it into compartments. The lowest part has a layer of sand or other suitable material to protect it. These ovens may be entirely of fire-clay, or of fire-clay with an iron covering.

These ovens may be either fixed or portable.

Small ovens for the front of the fire may be made of a square iron case lined with fire-clay. Under the oven is a reflector which throws the heat on the bottom of the oven, behind the reflector is a space for warming plates. This oven may be placed on a stand before the fire, or on brackets hooked on the bars. At the top may be an aperture, through which the hook of a bottle-jack may pass. The front of the case next the fire is moveable. Frying may be carried on upon the bottom of such an oven, the slab of fire-clay being removed. These ovens may be semicircular, with the convex side next the fire, and there may be a reflector on each side. They may be placed over the fire.

For field use, small grates may be employed in connection with the ovens. They have a hot-plate above, and a slide below for roasting potatoes, etc.

[Printed, 1*s*. Drawing.];

A.D. 1863, January 28.—N° 248.

OGLESBY, John, DICKINSON, John, DICKINSON, William Mark, and DICKINSON, John, the younger.—"Steaming, cooking, and generating gas."

A gas generating apparatus is combined with a cooking range. "The apparatus is to be made of iron of a square exterior form, "and set in brickwork; the central portion is to contain the "fire-bars, and on each side thereof a boiler for hot water is "constructed; the front of the fire-place is to be furnished with "slides for the purpose of enclosing the same, and also for "enlarging or diminishing the width of the fire. In the fire a "retort is placed communicating with a vertical pipe ascending "to a reservoir of water. The retort is filled with coal or other "carbonaceous matter capable of affording gas, and the smoke "and vapour from the fire is likewise taken up to the reservoir, "and passed through the water, whence it descends to a condenser "below, which is a tank for receiving the tar, the gas passes from "the condenser to a purifier, and thence to a small gasometer, "where it is retained for use below the range; on each side of "the ash-pit a steaming chamber is fixed, supplied with steam "from the boilers, and above the fire and the hot plate two ovens "are constructed for baking."

[Printed, 10*d*. Drawing.]

A.D. 1863, February 7.—N° 345.

TURNER, George. — "Apparatus for mincing or cutting "meat."

The following description is given:—

"One part of the improvements relates to apparatus in which "one set of cutting or dividing blades or teeth are applied to a "horizontal axis, and the other set of blades or teeth are "stationary in the barrel or cylinder, and have for their object "improved means of supporting the outer end of such axis, or "that furthest from the handle or driving means, adapted to "facilitate the passing away of the meat or other substance as "cut or minced. For this purpose I form the last of the fixed "blades or teeth into the support for the outer end of such axis; "or I form the outer support with inclined or knife edges to act "in carrying the substance out in a forward direction. Other of "the fixed blades may also aid to support this axis. I also in "some cases apply the outer revolving blades or dividers beyond "such support, and I also form their outer edges or surfaces to

" run on the cylindrical portion of the barrel or chamber in " which the cutting or mincing is effected, by which additional " bearing may be given to the axis; by such arrangement of " bearings the propeller spindles when in operation cannot move " from their central position. Fatty substances I apply through " a suitable hopper or feed to a cylinder or chamber provided " with a revolving axis and inclined arms or propellers, which as " the axis revolves causes the matters under operation to be forced " through an opening where revolving knives cut such matters " into the forms desired. Adjustment of thickness of cut may " be obtained by varying the rotation speed of the revolving " knives to that of the axis of the propellers."

[Printed, 8*d*. Drawing.]

A.D. 1863, February 14.—N° 403. (* *)

BAYLIS, William, and HOPWOOD, Thomas Henry.— " Tongs and forceps for grasping articles out of reach of the " hand."

"To one end of a bar or rod of wood, metal, or other suit- " able material of any convenient length, a short piece of the " same material is attached by a hinge joint or pin in such " manner as that the end of the rod forms the fixed jaw, and " the short piece the moveable jaw of the tongue or forceps, " the ends of both being bevilled off on the outside. At the " other, or handle end of the instrument, is hinged or jointed " a similar moveable piece, but rounded off at the end like the " handle, and to each of these moveable pieces is attached a small " lever or trigger working on a pin, and passing through a slot " in the rod, one of the levers being cranked, so that a wire pass- " ing from one to the other, and connecting their two ends, shall " cross the rod at or about the middle of its length, the conse- " quence of which arrangement is that the closing of one end " necessarily closes the other and vice versâ. The jaws are kept " open by a spiral or other spring placed either between the jaws " or between the handle and its moveable piece, so that when at " rest the jaws are always open, and the upper or moveable handle " is elevated an inch or more above the rod. The instrument is " held lightly in the hand, and the jaws are closed by tightening " the grasp on the handle so as to bring the moveable piece close " to the rod, the wire transmitting the same motion to the jaws " at the other end. On loosening the grasp the jaws will be "opened by the spring." This instrument, it is said, "may be "constructed in a variety of ways of wood, bone, metal, or "other suitable material, but one peculiar feature of the construc- "tion of the different forms is that the jaws and handle open and "shut simultaneously." When made of metal it may be used as steak-tongs.

[Printed, 10*d*. Drawing.]

A.D. 1863, February 18.—N° 443.

BLY, John Henry.—"Cooking stoves."

A "door, valve, or slide" is made in the flue behind the oven at the top, under the hot-plate. In house stoves, the flues lead "over top of oven down the side, and along the bottom, and up "into the flue at the back." In "ship or emigrant" stoves, the flues lead "over the top of oven down the side, across the bottom, "and up the flue at the side of the oven." The valve or door is opened by a rod from the front in house stoves, but in "ship or "emigrant" or "American" stoves, it is "actuated from the "side" and "the valve may be hinged, and moved by a handle "from the side of the stove."

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1863, February 21.—N° 479. (* *)

WOOD, William.—"Improvements in the process of manu- "facturing pomfret or liquorice cakes, rolls, sticks, and pipes, and "other similar articles of confectionery."

The first part of the invention relates to making use of gutta percha plates to spread the paste on; the plates and the upper surface of the sheet of liquorice are greased. The plates bearing the paste are then placed on a moveable platform and passed in succession under reciprocating stamps and cutters, also lubricated. Sometimes the boards are passed under rollers having stamps, and sometimes "the cutters are of a hexagonal form, so that the sheet "is entirely used up without leaving a web." The boards with the cut out materials are then placed in a heated room and dried, after which the cakes are removed.

Two rollers are used, in one of which are recesses the size of the cakes, while around the other, which is plain, is an endless board of metal, which is kept in close contact with the figured roller by the plain roller. The paste being placed in contact therewith is drawn between the rollers, and forced into the recesses previously larded and oiled, the formed cakes adhere to the endless board and are carried forward into chambers in which is a current of air, heated or otherwise, and dried. In place of making the dies or moulds fixed, they may be moveable, and in place of forming and drying the cakes on an endless board or sheet as above, boards, sheets, or plates of any suitable size or material may be used.

In making liquorice rolls, sticks, and pipes, the liquorice material is made as is described in No. 356, A.D. 1862, but drier than that usually employed. It is first made into sheets, and then formed into rolls or sticks by passing through grooved rollers, and into pipes by having a fixed mandril or mandrils in the grooves between the rollers, and using two sheets, one above the other. Liquorice rolls are now sometimes made by forcing the paste out of a tube or receiver through holes, the improvement in this is, placing a solid or tube mandril in each hole, and forcing the liquorice paste out between the die and the core or mandril.

[Printed, 6*d*. Drawing.]

A.D. 1863, March 11.—N° 667.

WOOD, WILLIAM.—" Pomfret or liquorice cakes."

To make these cakes light coloured, the paste is worked when it is " nearly cold and stiff." The flour is also omitted, and an additional quantity of sugar used instead. " White refined " sugar and gum " are also used. One part extract of liquorice, two parts white loaf sugar, and one part gum arabic, mixed with water, may be used. Colouring matter may be added. Strips or sheets of differently coloured pastes are placed together and formed into particolored cakes, rolls, etc. This is effected by the machines described in No. 356, A.D. 1862, and No. 479, A.D. 1863. The hollow dies in the roller of one of these machines may be filled with paste of one colour, and when a sheet of a different colour is passed under the roller, the result is that a device of one colour is fixed on a differently coloured cake. A roll of one colour may be passed through a mandril tube supplied with paste of another colour, and a device in different colours is thus formed on the roll.

The apparatus may be applied to other sorts of confectionery, and various other pastes may be combined with the liquorice paste.

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 11.—N° 670. (* *)

WERGE, John.—(*A communication from Alexander Ross.*)—
" Improvements in apparatus for indicating any regulated maximum or minimum degree of temperature."

This invention consists "in the employment of a compound " metallic strip fixed at one end to a connecting piece in communication with one of the poles of a galvanic battery, whilst its " opposite end is free to move to or fro by the action of heat or " cold upon the two metals composing the compound strip, as is " well understood. In combination with this strip there is an " adjustable indicator or pointer turning upon a fixed centre, and " capable of being adjusted to any degree of heat or cold upon a " properly divided thermometrical scale. This indicator is in " communication with an electric alarm, and through it with the " opposite pole of the battery." Upon the elevation of temperature, the strip comes into contact with the indicator and the electric circuit thus established rings the alarm bell " until the " original temperature is restored again."

"By the combination of the index arm, scale, and metallic " strip with a battery, alarm apparatus, and key board," notice can be given of the attainment of maximum temperature at any number of points, and the particular locality where the increase of temperature has taken place can be indicated.

If the strip be placed on the opposite side of the index arm to that above-mentioned, the attainment of the minimum temperature will cause the alarm bell to sound.

" By employing a double index the instrument may be employed for giving an alarm in case of either an increase or diminution of temperature above or below certain limits, capable of " regulation at pleasure."

The apparatus is applicable for regulating the temperature of ovens.

[Printed, 8*d*. Drawing.]

A.D. 1863, March 16.—N° 702.

HOYOS, Felix.—" Stove or fire-grate."

The stove is portable. It is shaped like the frustrum of a cone. It has a perforated plate or a grating at bottom and stands on a bed of sand or on a plate, so that the external air has no admission below the fire. In the centre is a tube passing up from the space below the grate to the top of the grate. The fire is lighted at top, and the draught passes down through the fire into the space below, and thence up through the central tube. To increase the size of the grate, the central tube may be surrounded by a solid or hollow block. For baking, this stove is placed on a stand, and a cover put over it; when the stand and cover are sufficiently heated the stove is removed, and the matters to be baked put in its place. The aperture through which the chimney passed is closed by a stopper. For boiling liquids, a boiler is made with an internal chamber to receive the stove. A tube leads up from this chamber, and the chimney of the stove fits therein. Air descends through the larger tube enclosing the chimney, and the steam passes down the same tube and is decomposed and burnt. The chimney tube may be coiled to afford a greater heating surface, and a separate tube for supplying air is provided. The boiler may be connected by pipes at top and bottom with a reservoir. A platform is fixed near the boiler, on which the stove may be placed to be lighted; a tube leads therefrom through the boiler.

[Printed, 8*d*. Drawing.]

A.D. 1863, March 16.—N° 706.

POWELL, Thomas.—" Chopping blocks."

The lower portion of the block is made of a hollow cylinder of cast-iron openwork, with projections on which rests a slab of wood, from six to ten inches thick. This slab may be reversed when one side is worn. The stem may also be in the form of a tripod, or other stand with legs. At the top of the stand are projections with screws to hold the slab. The slab may be circular, rectangular or of other shape.

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 18.—N° 724.

RICHMOND, Francis, CHANDLER, Henry, and RICHMOND, James Gadsby.—" Washing potatoes."

The invention consists in " an improved mode of constructing " the cylinders or drums in which potatoes or other vegetables " are washed." The drum is formed " with a cast-iron or other

“ frame furnished with trunnions supported in bearings fixed “ to the ends of the trough containing water as usual; one half “ of the cylinder or drum is loose, and it is provided with handles “ by which it is easily removed from the frame in which it fits, “ and the other half is hinged to the frame, the two halves being “ connected together and to the frame by a spring catch or otherwise. “ The circumference and ends of the cylinder or drum (or “ the circumference only) are made with strips or bars of galvanised “ iron or other suitable material. By this means the loose part “ of the cylinder or drum is easily taken out to remove the potatoes “ or other vegetables when washed, and to replace a fresh “ supply to be washed, and in some cases the machinery may be “ supplied with two loose portions to save time in removing the “ washed and supplying the unwashed vegetables.”

[Printed, 8*d*. Drawing.]

A.D. 1863, March 23.—N° 762. (* *)

HANCOCK, Henry.—(*Provisional protection only.*)—“ A new “ combined range for making gas, cooking by gas, and lighting, “ especially applicable for ships.”

The cooking arrangement is situated on the upper or main deck, and the gasometer is on the lower deck. At each end of the range and elevation is a copper; a retort heated by a fire is in the centre of the range, and between the copper and retort are two hot plates. There are four ovens in the range and two boilers, one on each side of the retort.

[Printed, 8*d*. Drawings.]

A.D. 1863, March 23.—N° 765.

GRANT, Thomas George.—“ Ovens and apparatus for heating “ the same.”

The oven is a kitchen range oven. It is of sheet iron and has shelves, preferably of “ open work.” There are doors in front, preferably a door or doors to each space between two shelves. It is fixed within a “ chamber or case ” also of sheet iron. There is an air space all round except in front. Below is a fire-place, and the products of combustion pass between the oven and the outer case. At the top is a flue, closed by a damper. “ At the “ upper part of the oven ” are tubular passages with valves, to carry off vapours, etc. Doors are provided to the outer casing, and valves by which air may be admitted. One of the drawings shows a fire-place with water-spaces at the ends.

[Printed, 1*s.* 8*d.* Drawings.]

A.D. 1863, March 30.—N° 819. (* *)

HUGHES, Hesketh. — "Machinery for shaping metal and " plastic substances."

A machine suitable for shaping confectionery, etc. consists of two rolls, cut or formed with the shape or pattern in a spiral direction, the rolls being driven at the same speed and in the same direction by an arrangement of toothed wheels and a handle. The paste or substance to be shaped is fed in by a hopper at the top, and is pressed between the rolls by a plunger passed down the hopper, "when it is taken hold of by them and delivered " in pills or pieces of spherical or other form according to the " design on the rolls, into a receptacle placed below to receive " them."

[Printed, 10*d.* Drawing.]

A.D. 1863, April 25.—N° 1040.

LEGRAS, Alexandre.—"Apparatus for making ices."

"According to this invention, one or more freezing apparatus " are actuated by means of driving bands or gearing from one " driving shaft common to all, provided with suitable clutches, " whereby the working of any one or more of the apparatus may " be arrested without interfering with the working of the rest. " Each freezing apparatus consists of a fixed tub or vessel, in " which rotates a metal cylinder supported upon a footstep bearing in the bottom of the outer vessel. A vertical spindle passes " up the centre of the metal cylinder, and is supported at the " upper end by a suitable bracket piece fitted into a socket in the " edge of the tube. The cylinder is closed at the bottom and " open at the top, its mouth being level with the top of the outer " tub or vessel. Round the mouth of the cylinder there is " soldered a metal collar, round which the strap or driving band " passes, slots or openings being made in the side of the outer " vessel for the strap or band to work through. The freezing " mixture is introduced into the outer vessel or tub, and the " cream or other ingredients to be manufactured into ices are " contained in the metal cylinder or inner rotatory vessel, an "obtained by a screw or any other mechanical power, and is "delivered in the shape of a hollow pipe."

[Printed, 4*d*. No Drawings.]

A.D. 1863, May 18.—Nº 1241.

WATSON, WILLIAM.—"Manufacture of bread."

The mixing vessel is a horizontal cylinder with along its length above. The mixer is composed of transverse bars united by cross-pieces. It is mounted in bearings in the cylinder ends, so as to be raised when the mixing is complete. It has no central shaft, and the arms are inclined so as to drive the dough towards the end of the cylinder. It is driven by external gearing. At one end of the cylinder is a piston, with a hole in the centre through which the axle of the mixer works; at the other end is a "sluice door." When the kneading is complete, the mixer is removed, the end of a rack fitted in the central hole in the piston, and the dough thereby driven out through the door at the opposite end. The opening of the door is regulated to emit the desired thickness of dough. The dough is received on an endless cloth. It passes under a "duster" or perforated box holding flour, which has a "lifting and dropping" motion given it by a cam. It then passes under rollers and under a shaft carrying discs which divide it. On the same shaft are also cross pieces or dividers so that the dough is separated or partly separated into loaves. Next it is delivered on to trucks by which it is run into the oven.

The oven is built in chambers, one over the other, and the truck rails can be moved so as to deliver to each compartment in succession. The chambers are of iron within brick walls. The flues traverse from end to end "communicating alternately "at opposite ends," so that the doors are alternately at each end. The flues are narrow below and wider as they ascend, but are always less than the breadth of the oven, to prevent overheating at the sides. A cold air flue passes between the first flue and the lowest chamber, and thence to the fire. The trucks are of two parallel angle irons, fixed at a proper distance apart. Their bottoms are of tiles or metal plates, upon which a pattern may be engraved. The doors fall down and make a "stock "plate" in front, level with the oven floor.

To adapt the mixing apparatus to the "expansion system," in which the yeast is mixed first with a small portion of flour and more flour is gradually added, an agitator is used which has "a "through axis and screw" and radial arms. The size of the kneading vessel is decreased by bringing up the piston, some of the radial arms being removed. As the process goes on, the piston is gradually withdrawn, and the arms replaced. The process may be completed with this agitator or the one first described.

[Printed, 2*s*. Drawings.]

A.D. 1863, June 5.—N° 1402. (* *)

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Frumence Nicolas Frezon.*)—"Improvements in treating liquorice "root to obtain liquid and solid extracts therefrom."

The root is pulverised and exhausted with cold water; the thick waters are boiled for about ten minutes, by which they are clarified; they are then passed through a woollen strainer, which retains the coagulated matter. The clear liquid, of a dark yellow colour, is filtered through animal black, evaporated and "allowed "to cool gradually, when it becomes a pretty firm mass and may "be made into sticks or other forms."

In place of the above process "after the defecation and filtra- "tion of the liquid," "it is placed in a wooden or other suitable "vessel, and while hot, a solution of acid," by preference citric acid, is added, "or acid salts, such as bisulphates of potash; "abundant coagulation takes place, and the mass is allowed to "cool." It is then filtered, and the paste washed in cold water, or any slight excess of acid is neutralised by bicarbonate of soda, care being taken not to employ any excess of the salt. "The "product is slightly dried to bring it into a solid state. It may "be used in its solid state, or in the preparation of drinks, syrups, "jellies, candies, and otherwise."

[Printed, 4*d*. No Drawings.]

A.D. 1863, June 11.—N° 1453. (* *)

DEANE, EDWARD.—(*Provisional protection only.*)—"Improve- "ments in cooking and culinary utensils."

"This invention consists in making cooking and culinary "utensils, such as boiling pots, saucepans, gravy pans, preserving "pans, and others of steel coated with tin."

The inventor says,—

"I first prepare the steel by the decarbonization process, and
" then I prefer to give to it by blocking or otherwise the shape
" and configuration of the utensil or vessel required, after which
" I immerse it in a bath of tin as adopted by tinners, and having
" passed the article through this process, it is, when dry, fit to
" be used for the purposes required."

[Printed, 4*d.* No Drawings.]

A.D. 1863, June 18.—N° 1527.

BARKER, David.—"Treatment and preservation of yeast."

The yeast to be treated may be either pressed or liquid. One per cent. of caustic soda or potash is added and it is put into a filtering vessel with "spring water." This process is to extract the bitter principle, and is not required with yeast obtained from the manufacture of spirits or wine. It is next placed in canvas bags and pressed dry. Two per cent. of caustic soda or potash and 25 per cent. of farinaceous matter are added and the whole mixed and dried. For effecting this a machine is described. The materials are placed in a hopper within which revolve mixing rollers fitted with blades. Thence it passes to a pair of steel grinding rollers. From these it is delivered to the outside of a revolving cylinder heated by steam or otherwise. It adheres to the surface of this and is carried round by it. When dry it falls or is scraped by a fixed knife into a receiver below.

[Printed, 6*d.* Drawing.]

A.D. 1863, July 3.—N° 1657. (* *)

BRINSMEAD, Henry.—"Cooking apparatus."

The apparatus is more especially, but not exclusively, suitable for heating by gas. It consists of an oven, on either side of which are one or two detachable boilers heated by closed tubes "projecting from the boilers into the lower compartment of the "oven" above the gas burners. A "heat distributor," in the form of an inverted cone, turns the heat from the burners beneath it to the sides of the oven. Above the boilers are folding leaves for receiving dishes. The amount of heat required is regulated by shifting the burners laterally to or from the tubes. Burners outside the oven are employed to heat the boilers when the oven is not in use.

[Printed, 10*d.* Drawing.]

A.D. 1863, July 16.—N° 1786.

RAND, George.—"Apparatus for boiling and cooking."

Any oil used for illuminating purposes, animal, vegetable or mineral, may be used, or any of the hydro-carbons. The apparatus consists of a vertical cylindrical boiler. Below is an oil reservoir with suitable means of supply. Flat wicks in suitable holders, to be raised and lowered in the usual manner by toothed gearing, are used. Between the boiler bottom and the oil reservoir is an air space, with openings at the side to increase the draught. At the centre of the boiler passes a conical chimney, closed at bottom by a plate which has apertures to admit the wicks to pass through. To the top of the boiler a steaming apparatus may be attached for cooking purposes. Above the boiler is a stand which supports a pan for frying, etc.

[Printed, 8*d*. Drawing.]

A.D. 1863, July 21.—N° 1824.

DUNCAN, Charles Stewart.—Heating, melting, boiling, etc.

The invention relates to apparatus for "heating liquids or "solids, boiling or evaporating solutions," "melting or dissolving "animal, vegetable, or mineral matters," "annealing glass" etc., and various other purposes. The method may also be applied to "baking ovens and furnaces where an equalized heat is re"quired." No particular description of the method of application in this last case is supplied, but the following general description is given:—

"I form my apparatus in such a manner that there shall at all "times be a space left between and around two metal or other "vessels (one within or above the other) of whatever shape or "material may be required, according to the operation to be "effected, the apparatus being constructed with double or false "bottom and sides, either fixed or moveable. Within this space "or double skin I pour molten lead, zinc, or tin, or any mixture "or alloy thereof, or any metals that fuse at a temperature less "than that of which the vessels themselves are composed. Heat "being applied to the bottom of the outer vessel by any form of "grate, stove, or furnace, the molten metal will form the medium "of induction, conduction, or radiation to the inner vessel, or "upper kiln, furnace, or hot-air chamber, in which the materials "to be treated are placed, by which means an equalized tempera"ture is distributed throughout or over the entire surface of the

" inner vessel or hot-air chamber, preserving the materials from " any excess of local heat."

[Printed, 4*d*. No Drawings.]

A.D. 1863, August 6.—Nº 1942.

CLARK, William.—(*A communication from Jacques Blondel.*) —Ovens.

The oven is a portable one. It is supported on legs. Underneath the oven is fixed a fire-place, above which are bricks. From it flues pass below the oven, up the sides and over the top, to a chimney in the centre. A sliding frame passes in and out of the oven so that articles can be placed upon it to be run in and out of the oven. In the front part a boiler may be fixed.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1863, August 7.—Nº 1948.

LIDDLE, Catherine or Katy.—(*Provisional protection not allowed.*)—Cooking eggs.

A saucepan has a false bottom in which are holes to receive tea-cups. Eggs are broken and placed in the cups, and water in the saucepan so as to surround the cups. The eggs are boiled according to taste.

[Printed, 4*d*. No Drawings.]

A.D. 1863, August 8.—Nº 1965.

SMITH, Michael.—(*Provisional protection only.*)—" Obtaining " farinaceous material from potatoes."

The potatoes are boiled in nets or steamed in a vessel " until " the peels or skins begin to crack or break." They are then grated through perforated plates. " The pulp or farinaceous " matter is thus separated from the skins or peels of the " potatoes, and then placed in hair, canvas, or fine wire bags " or wire boxes, and submitted to screw or other pressure, thus " forcing the farinaceous matter through the same, by which " means it is thoroughly cleaned of any eye-holes or pieces of " skins or peels that may pass through the holes of the grater. " The farinaceous matter is then pressed together, and afterwards " forced through perforated plates, as before described, when it " is placed in frames covered with canvas or wire, or perforated " or woven fabric, or perforated metal enamelled or otherwise.

"These frames are placed in a stove room heated to 50° "Fahrenheit, or otherwise dried."

[Printed, 4*d*. No Drawings.]

A.D. 1863, September 1.—N° 2158. (* *)

RUSSELL, George.—"Apparatus for cooking."

One form shown in the Drawing consists of a casing with a range and ovens, a hot-plate, and other cooking apparatus. At one end of the casing is a furnace heating what is in substance a steam boiler. The flues are furnished with dampers in order to direct the gases to either the cooking apparatus or the boiler, or to both. The ash-pit is fitted with a partition, and has a door to each division, in order to confine the admission of air to either compartment. The horizontal cylindrical boiler has flue tubes, those on one side conveying the gases in one direction in order to return by the other set to the chimney and the cooking range. A water space is provided beneath the flues for the deposit of the salt, which is blown off through a cock.

[Printed, 10*d*. Drawing.]

A.D. 1863, September 1.—N° 2159.

CLARK, William.—(*A communication from Auguste Desgoffe and Achille Ollivier*).—"Hydraulic apparatus."

Hydraulic pressure is produced by winding on to a reel immersed in the liquid a wire or cord. This reel may be in the chamber containing the piston, or the pressure may be transmitted from a separate chamber to the cylinder in which the piston works. The wire or cord passes through a stuffing box or has other means for rendering the aperture through which it passes air-tight. An elastic chamber of india-rubber may be used in a way not specially described. The apparatus may be used in presses for making vermicelli, chocolate, confectionery, and other matters. It may also be applied to lifting and cutting machinery.

[Printed, 8*d*. Drawings.]

A.D. 1863, September 11.—N° 2244.

CRICHLEY, Henry.—"Stove grates and kitchen ranges."

The object of the invention is to provide a means whereby the fire-place can be extended or contracted.

"The cheeks are pinned to the back moulding and back strap, " a pin or stud upon the bottom grate engages in a slot in the " bottom of each cheek, and regulates the distance and direction " in which the cheek will move; a similar stud upon the back " strap engages in a similar slot in the bottom grate, and another " stud upon the bottom bar of the range works in a slot formed " between the bars of the bottom grate. By applying a slight " force, either pulling or pushing, as the case may be, to a small " knob upon the front bar of the bottom grate, the cheeks and " back can be simultaneously drawn in or pushed out."

[Printed, 10*d*. Drawing.]

A.D. 1863, September 24.—N° 2350.

RAGON, Adolphe Ernest.—(*A communication from Charles Constant Simonet de Changy.*)—Kneading apparatus.

"This invention consists of an open vessel mounted upon axes " situate at its ends and working in suitable standards or sup- " ports, the bottom of the aforesaid open vessel is formed curved " and the sides and ends flat or upright, a portion of the bottom " is also punctured or perforated from end to end with lines of " fine holes for the admission of compressed air from a vessel or " reservoir connected with a chamber fixed to the outside of the " aforesaid open vessel. An important feature in this invention " consists of an instrument of the following construction for " stirring or mixing ingredients together; for example, in mixing " flour into dough or paste for the manufacture of bread and " pastry, instead of using ordinary knives or blades mounted on " a revolving shaft," "a skeleton knife of an oval or elliptical " form with bars across same" is employed. "This knife should " be of such length as to reach from the bottom of the aforesaid " open vessel at one end thereof to the top of the other end of said " vessel, in which oblique position it is supported and caused to " rotate by pieces of metal or cranks being fixed thereto and to the " short axes aforesaid, so that as this oval knife revolves every " part of its edge touches every portion of the curved sides of the " the aforesaid open vessel from end to end in a backward and " forward direction, thereby constantly disturbing and thoroughly " mixing the ingredients or materials placed therein, in a simple " and efficient manner. In preparing dough for the manufacture " of bread it is proposed to admit air into the aforesaid vessel " during the rotation of the aforesaid elliptical stirring instru-

" ment. When the operation is finished the dough or other " ingredients or materials may be removed by turning the afore- " said vessel upon its axes upside down."

[Printed, 10*d*. Drawing.]

A.D. 1863, October 1.—N° 2404.

LE GRAS, Louis Napoleon.—(*Provisional protection only.*)— " Cooking stoves and apparatus."

The inventor says :—

" I make a double case, by preference round or oval, closed at " top except to two pipes, as hereafter stated, and connected at " bottom by a continuation of the case with a central aperture " for the admission of air; this case is intended to hold water or " other liquid to be heated. Near the bottom of the inner wall " of the case, and over the aperture for the admission of air, I " place a grating for containing charcoal or other fuel, or I fit gas " burners. I drop into the case, but leaving space all round at " top between it and the liquid holder, a vessel with conical sides " divided into various compartments suited for baking and cook- " ing any articles placed therein. A pipe leads from the top of " the liquid holder into the bottom of another case for the pur- " pose of conveying steam to other vessels placed therein, the " bottom or sides or both of which are perforated, and are " intended to contain such articles of food as can be cooked by " steam. A second pipe leads from another part of the top of the " liquid holder into the bottom of a pan with a cover, which may " be used for cooking eggs and other articles."

[Printed, 4*d*. No Drawings.]

A.D. 1863, October 28.—N° 2672.

JONES, Robert Baker.—" Portable cooking apparatus."

Improvements upon No. 467, A.D. 1856. The inventor says ;— " Instead of dropping the boiling vessels, oven, and fire-basket " into a hollow pan or bed, as described in the Specification of " the said Letters Patent, I continue these parts down to the " bottom of the apparatus, and I form a false bottom to the " boiling vessels, which false bottom is on a level with the bottom " plate of the oven, the space between the actual and the false " bottoms and the bottom of the oven and the bottom plate of " the apparatus forms a hot chamber to which access is obtained " through doors provided in the sides or back. In the foldir

" screen I attach the back and cover, together with the sides, to " the basting dish by hinges, and form the whole to fold and " occupy but small space."

[Printed, 10*d*. Drawing.]

A.D. 1863, October 30.—N° 2693.

CLOW, Henry.—(*Provisional protection only*.)—Ovens.

The ovens are "of considerable length" and "the matters to " be baked are caused to travel through the oven by means of a " travelling endless web that passes from end to end of the oven, " the sides and the top and bottom of the oven are composed of " fire-tiles, and the oven is heated by means of flues in the following manner:—The bottom of the oven is heated by flues " passing from one fireplace or furnace, and the top of the oven " is heated by flues passing from another furnace, both of the " furnaces are placed near to that end of the oven at which the " matters to be baked enter; the matters to be baked are thus " subjected to the greatest heat on first entering the oven. The " furnaces that heat the flues that pass along the top and bottom " of the oven are at right angles to the length of the oven, and " flues pass from both sides of the furnaces. The flues from one " side run towards the entrance of the oven, and from the other " side to the exit end of the oven. The flues that run towards " the entrance end of the oven are comparatively short, as the fires " are, as before stated, placed near to this end of the oven. The " short flues from one of the furnaces when they arrive at the " entrance end of the oven are led into a flue that runs along and " heats one side of the oven, and the short flues from the other " furnace are similarly led into a flue that heats the other side of " the oven. The flues at the exit end of the oven all unite into " one common flue and in this flue a damper is placed."

[Printed, 4*d*. No Drawings.]

A.D. 1863, November 13.—N° 2832.

DEARLOVE, William Francis.—Chopping apparatus.

A knife is hinged to the centre of a semicircular board, so as to have a vertical motion imparted to it by means of a handle at its outer end. The slot through which the pin of the hinge passes is elongated, so that its knife is capable of a slight drawing motion. It is pressed forward by a small spring behind the hinge. From the point where knife is hinged extend two bars, one on each side of the knife, and mounted so that they can swivel horizontally over the surface of the board, and, the stud to which the knife is hinged being capable of similar revolution, the bars and the knife can be moved so as to act on any part of the board. Attached to the end of the bars is a segmental plate of metal which works against a similar plate surrounding the edge of the board. As the knife rises and falls between the bars, they clear it of particles of the chopped matter. A ledge behind prevents the materials from falling off.

[Printed, 10*d*. Drawing.]

A.D. 1863, December 3.—N° 3043.

STEVENS, Ebenezer.—"Apparatus used when cooking."

An apparatus for roasting or baking is described. Within a metal frame like a meat screen, open at one side to the fire, and with a door on the opposite side, revolves by means of "an ex-" ternal jack," or otherwise, a suspended inner frame, of size just sufficient to admit of such rotation. Moveable shelves are fitted to this inner frame. A hook above receives a joint, etc. in the usual way. Below is a pan, and above the centre of this pan is fixed a basin, which will receive the grease, while a pudding may be baked in the pan. Any article to be baked is placed on the shelves. When used with a portable fire-place, the fire-place is constructed preferably of sheet iron, of a rectangular shape, with fire-bars in front and ash-pit below. The "sides, back, bottom, " and top" are to be closed, except that there is an opening at top, "similar to those in hot plates." Behind the fire, a place may be partitioned off for a boiler.

Gridirons to be used in the opening above mentioned, are made with "trough-like bars curved upwards so that the centre of each " bar is higher than its two ends"; the bars are encircled by a " hollow ring into which the fluid conveyed by the hollow bars " flows and passes into an enlarged or projecting part of the " ring, which is formed into a spout." Or the bars "may be " made plain, and their ends caused to overhang the hollow " ring." This ring may be in one piece with the bars, or separate from them, and attached to the handle. In the latter case the bars are "connected together at their ends," which "are " caused to overhang the hollow ring." The ring has feet or projections, and there is a projection or "web" attached to the end of the handle and part of the ring, so that the gridiron will stand steadily. When the gridiron is circular, the bars may be mounted on a "central axis carried by the outer ring and handle," so that it can revolve horizontally.

Frying pans are mounted on a central joint, fitted in the middle of the bottom, so they can revolve horizontally on it. The handle is fixed to this joint, and has side forks or projections to support the pan.

[Printed, 10*d*. Drawing.]

A.D. 1863, December 7.—N° 3069.

PIERCY, FREDERICK.—(*Provisional protection only*.)—"Appli-" cation of heat to water and other fluids."

The heating apparatus is to be placed in the fluid to be warmed and may be used for cooking, heating soups, etc. A gas burner, lamp, or other heating agent, is enclosed within a chamber, closed below, and having access to the air by tubes above, down some of which air passes to feed the flame whilst the products of combustion pass away by the others. The "downcast" tubes are preferably segments of circles concentric with an inner "upcast" tube.

A vessel with a "conical passage through it which forms the " chimney or funnel of the lamp" may be applied to lamps for heating fluids. The space round the burner may be enclosed, and air chambers may pass downwards through the vessel to supply the flame. The lamp may then be used "submerged" as above described. "Cross channels" may be made in the chimney for the circulation of the water.

[Printed, 4*d*. No Drawings.]

A.D. 1863, December 7.—N° 3075. (* *)

BATE, THOMAS.—(*Provisional protection only*.)—"Improvements " in receptacles for containing biscuits, fruits, and other articles."

This invention relates to cases or boxes for keeping "free from " damp, or dust, or from atmospheric influence" "articles of " grocery, such as dried fruits, or sweetmeats, or biscuits." It is proposed to form "a lip, border, or ledge around the interior of " the box somewhat of an inverted V-shape, which rises above " the level of the sides, and a similar recess or rebate is to be cut " out of the under part of the lid to fit onto the lip or ledge."

In other cases it is proposed "to form the border as a projection " at the sides of the interior of the receptacle, and to dispense " with the recess in the lid," or the lips or borders are formed midway on the sides of the box, and corresponding grooves are cut in the under part or sides of the lid. "The receptacles may " be formed of wood, metal, and glass, or other convenient " substance separately or in combination."

[Printed, 4*d.* No Drawings.]

A.D. 1863, December 12.—N° 3143.

RAY, HENRY ROBERT.—(*Provisional protection not allowed.*)— " The Essex sauce."

The following receipt is given :—

Cayenne pepper	1	oz.
Vinegar	1	gal.
Soy	4	oz.
Mushroom ketchup	4	,,
Garlics	6	,,
Shallots	12	,,
Anchovies	10	,,
Port wine	1	qrt.

[Printed, 4*d.* No Drawings.]

A.D. 1863, December 14.—N° 3155.

SMITH, SAMUEL, and SMITH, THOMAS.—" Manufacture of " lozenges."

The "active and liquid ingredients" are mixed in a reservoir, by means of a revolving stirrer, with part of the sugar. Thence they pass by a stop-cock or otherwise to a kneading vessel, into which the rest of the solid ingredients is supplied by hoppers or otherwise. Stirring arms revolve within this vessel, and there are also stationary arms attached to a shaft, so as to be removeable when required. These arms may be perforated. A series of consecutive kneading vessels may be employed. Instead of stirrers, plungers may be used, with or without springs at their lower ends. The sides of the vessel are then curved inwards like "an " inverted bell," and spring outwards and inwards, as the plunger is driven into and withdrawn from the paste. For this purpose the sides are acted on by springs or excentrics from the exterior. At the lower part of the vessel are openings furnished with d through which the paste is forced. By means of dies, the j may be suitably shaped as it passes. The paste passes between rollers, one of which is fitted with female and a corresponding one with male dies, to stamp out the lozenges. The paste in its passage is dusted by means of hoppers or otherwise. The hollow dies are provided with plungers actuated by springs or excentrics, which force out the finished lozenges. The surfaces of the rollers, etc. is lubricated by bars covered with pads; scrapers are also fitted to the rollers. The lozenges may also be formed by means of cells shaped on bands of india-rubber working over rollers, and when finished they may be expelled by stretching these cells. Rings at the side of the band take on to bars by which a lateral extension is given, while the bands are stretched longitudinally by "rotating or other forcers" at the same time. Parts of these cells may be formed of vulcanite, metal, or other hard material.

[Printed, 2*s*. 10*d*. Drawings.]

A.D. 1863, December 14.—N° 3156.

BROOMAN, Richard Archibald. — (*A communication from Auguste Cardinal, junior.*) — (*Provisional protection only.*) — "Ships' cooking and distilling apparatus."

The whole apparatus is surrounded on three sides by the boiler, which is supplied with sea-water, and from which the steam passes to a condenser. The fire is at the bottom of the range on one side, and the flue bends round at the side of the fire-place under an oven. Above the fire is another part of the boiler, and above this again a steam chamber connected with the boiler, in which cooking vessels may be placed. Another small oven may be placed over the front part of the fire-place. The products of combustion pass off by a chimney in the back.

[Printed, 1*s*. Drawings.]

A.D. 1863, December 24.—N° 3262.

GEDGE, William Edward. — (*A communication from Jean Antoine Kautret.*) — (*Provisional protection only.*) — "Kneading "machine."

The machine "is composed of a horizontal shaft carrying arms "which in rotating gear into other arms fixed to the sides of the "kneading trough. These two arrangements of arms are set "wedgewise to each other so as to press the dough and render it fit "for making bread. The flour is run into a hopper, from which it

" spreads into a box or case-forming regulator, and from which it " falls gradually into the kneading trough in quantities regulated " by the workman according to requirement. This arrangement " of regulator and the wedge shape of the arms, the whole made " of wood, are the essential characteristics of this invention. " The gradual escape of the flour from the regulator to the " kneader is effected by means of two small moveable boards, " one of which is more or less pressed by a screw against a roller " which regulates the quantity to be permitted to fall at one " time into the kneading trough. Rotation is given to the " horizontal shaft by toothed gearing, and a fly wheel and band " in connection with the motor, which may be steam or horse-" power. This same toothed gearing, by means of a band passing " over a small pulley, serves at the same time to work the roller " which regulates the quantity of flour which is to fall into the " kneader. A press screw serves to raise at pleasure one of the " ends of the trough to facilitate removal of the dough and " cleansing."

[Printed, 4*d*. No Drawings.]

A.D. 1863, December 30.—N° 3295.

WHITELAW, Alexander.—Treating brine.

Brine from salt flesh or fish is placed in receptacles of such a character that when they are placed in a less saline liquid the process of " dialysis " can go on through them. By its action the salt is removed from the brine, and the juice of the meat left in a nearly fresh state, suitable for making soup. The juice may also be evaporated to dryness, and the product made into meat biscuit. The receptacles may be bladders with or without stopcocks, and fitted, if needful, on a frame. Porous earthenware, with the pores filled with size, may also be used, or any other vessel which admits of the process being carried on. These are placed in water, or even suspended in the sea. The process may also be applied to salt meat, joints of which, immersed in brine, may be thus treated. As fast as the salt is removed by " dialysis," from the brine, the brine takes up fresh salt from the meat, till the whole of the salt is extracted.

[Printed, 4*d*. No Drawings.]

1864.

A.D. 1864, January 13.—N° 91.

CLAY, JOHN.—(*Provisional protection only.*)—"Apparatus for "cleansing, decorticating, and cutting potatoes, turnips, and "other esculent roots."

"The invention relates to apparatus for cleansing potatoes and "other esculent roots, or for removing the skin therefrom when "required, and it may also be applied to the cutting up or "'slicing' of turnips and other roots. The improvements consist in the employment and use of a vertical disc revolving "within a cylinder formed of 'lags' or bars at about mid-distance "from each end; this disc is furnished on each side with brushes "or is otherwise roughened, and is caused to rotate in a contrary "direction to the cylinder containing the potatoes. The potatoes "or roots to be cleaned are to be placed within the 'lagged' "cylinder at each side of the disc, so that as the cylinder and "disc rotate in opposite directions, the potatoes are brought "under the action of the brushes and are constantly changing "their position. When it is required to cut or 'slice' the roots, "'blades' or knives are to be secured to the sides of the disc in "a diagonal or projecting position, and a 'stop' is to be placed "in the cylinder to hold the roots whilst they are cut. The "cylinder rotates, partly submerged, in a vessel of water, which "washes the roots, and receives the dirt which escapes through "the interstices between the lags or ribs."

[Printed, 4*d*. No Drawings.]

A.D. 1864, January 19.—N° 146. (* *)

JOHNSON, JOHN HENRY.—(*A communication from Warren Fish.*)—(*Provisional protection only.*)—"An improved attachment for lamps or gas burners."

This consists in "supporting vessels and other articles over the "lamp flame, to be heated for cooking and other purposes," and in "the combination of a support for sustaining vessels or "other articles to be heated with a standard rod and adjustable "clamp, which will admit of the apparatus being attached to any "convenient part of a lamp or gas burner, and shall, when so "attached, hold the vessel or article in a position immediately

" over the flame. The standard rod is in some cases made " telescopic, or otherwise adjustable in length or height."

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 3.—N° 290.

DURRANT, JAMES.—(*Provisional protection only.*)—"Egg-" boiling apparatus."

The eggs are held in a frame within the saucepan, mounted on a central stem on which it slides up and down. This frame is pressed upwards by a spring, but can be held down by a catch. The catch is sprung by a lever, weighted by a tray full of water. When the tray is full, the lever is held down, when it is empty the lever rises. A small hole in the tray allows the water to escape gradually. Sufficient water is put in to last the time required for cooking an egg; when it has run out the catch is raised and the spring raises the frame with the eggs. The top of the saucepan is of such a height that the eggs are tapped against it and cracked. At the same time the upper part of the side of the vessel flies open, and a bell is struck. The apparatus may be fitted for use on a fire, or with a stand for a gas burner or otherwise. The above devices may be slightly modified, a weight may be used instead of a spring, and the vessel may open at the top instead of the side.

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 11.—N° 360.

JOHNSON, JOHN HENRY.—(*A communication from Anthony Pollak.*)—" Manufacture of superphosphates."

These are to be used for making bread and other purposes. 1,000 lbs. oil of vitriol are added to 10,000 lbs. water, and 1,400 lbs. burnt bones stirred in. The mixture is stirred for 16 to 18 hours, then drawn off and lixiviated. Next it is evaporated, and as the evaporation proceeds, ground calcined bones are added in the proportion of 10 lbs. to every 10 "wine gallons" "standing " at 25° Baumé." If the extract is not of that strength $\frac{4}{10}$ lb. bones " for each degree of Baumé for every ten gallons" should be added. The concentration is continued till the liquid assumes " a viscid and creamy consistency." Next, the liquid is "slightly " diluted" with gelatinised water made by mixing boiling starch in water. For "each degree of Baumé of the original ten gallons"

$\frac{1}{16}$ lb. dry potato starch is added, and a little water if required. It is then dried, sifted, dried again and pulverised.

Other superphosphates may be prepared by mixing with the extract of burnt bones, etc., for every gallon 0·0144 lb. hydrate of soda, or 0·0203 lb. potassa, or 0·0180 lb. hydrated carbonate of magnesia, or "corresponding equivalents of soda and potassa or "caustic magnesia." The liquid is then concentrated "to an "emulsion of fine crystals," and treated as before. To make self-raising flour, 1·66 lbs. dry bicarbonate of soda, 3·69 lbs. diluted superphosphate, and 191 lbs. wheat flour are mixed. To make baking powder, 20 parts dried superphosphate and 9 parts bicarbonate of soda are mixed.

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 15.—N° 393.

DARBY, STEPHEN.—(*Provisional protection only.*)—"Manu-"facture of dough and bread."

Instead of drawing off dough into the open air, from the vessel in which it was mixed with water containing carbonic acid gas under pressure, it is drawn off into a closed vessel into which gas or air has been forced to raise the pressure. The gas is allowed to escape gradually, so that the dough rises more gradually than in the common method. The dough is also measured out into loaves while under pressure. This may be done "by discharging "it from the mixing vessel into a box or measure of suitable "capacity; it may be rectangular, cylindrical, or of other form, "and a plunger or piston moving to and fro in the measure "ejects the the dough from it immediately it is full, thus lumps "of dough, each the size for a loaf, are discharged into the receiv-"ing vessel, which is kept under pressure, as before mentioned. "The receiving vessel contains in this case an endless travelling "table or apron, or other suitable apparatus for receiving the "loaves and keeping them separate, and if desired the loaves "may be received into tins. When the receiving vessel is full, "the pressure is let off gradually, and the loaves then rise."

[Printed, 4*d*. No Drawings.]

A.D. 1864, February 27.—N° 486.

BRADFORD, THOMAS.—(*Provisional protection only.*)—"Me-"chanism for shaking, riddling, egg-whisking and mixing."

"The improvement consists in the peculiar adaptation and use
" of a 'ball-and-socket joint,' as the centre of universal motion,
" from which the shaking, riddling, whisking, or other motion is
" centred and governed."

"When the invention is to be applied to riddling or shifting,
" the perforated receptacle or riddle containing the materials to
" be shifted is loosely connected to a lever, about the centre of
" which is the ball, which bears in the socket formed in a cross
" bar on the outer case or trough or in the lid; by giving a
" lateral rotatory motion to the part of the lever above the ball,
" the material will be spread and distributed very equally over
" the surface of the riddle, and be efficiently separated."

"When the invention is to be applied to whisking or mixing,
" an ordinary whisk is to be attached to the lower end of the ball
" centred lever, and the required increase of momentum or power
" may be obtained by placing a counter-balancing ball to the
" handle part of the lever. For triturating or reducing materials
" to powder, a pestle is to be attached to the lower end of the
" said lever to operate within a bowl or cavity of corresponding
" form to the radius of the lever."

The apparatus is available for "whisking eggs or cream" "triturating, as in using a pestle within a mortar," and other purposes.

[Printed, *4d.* No Drawings.]

A.D. 1864, February 29.—N° 494. (* *)

BARWELL, Henry.—Steam generator.

This invention relates to a portable steam generating apparatus, which may be of any convenient form. The drawing exhibits a vertical cylindrical shell, covered with wood to prevent the radiation of heat. The furnace is concentrically disposed and is surrounded with water spaces; the chimney springs from the crown of the furnace and passes up through the steam space and through an upper feed water compartment to a suitable height above. The steam is taken from the upper part of the steam space by a tube, which enters through the casing. This tube is bent upwards and over the top of the boiler towards the chimney, into which it enters and passes downwards towards the furnace in spiral coils; it is then turned upwards, passes out through the opposite side of the chimney to a convenient length and terminates with a cock and nozzle, to which the steam distributing tubes are attached. In order to facilitate its removal from place to place, the boiler is fitted with a pair of trunnions, whereby, when required, it can be mounted upon wheels; it is also furnished with side handles and legs. Safety and vacuum valves are fitted to the apparatus, also a water gauge, blow-off cock, steam whistle, and alarm plug.

This invention "may be applied to heating dwelling-houses, " warming cattle sheds, steaming cattle food, for cooking pur- " poses, and in other cases where a continuous jet of steam can " be used with advantage."

[Printed, 6*d*. Drawing.]

A.D. 1864, March 3.—N° 532.

WRIGHT, JOSEPH.—" Apparatus for baking or manufacturing " oatcake."

A table is loosely and excentrically mounted upon a crank at the top of a vertical spindle on which is a pulley. Rotary motion is communicated to the spindle by the pulley and an eccentric motion thereby given to the table which is prevented from rotating by chains. Oatmeal is sprinkled on a board placed on the table, dough is poured thereon, and the whole is mixed by the motion of the table. The superfluous meal runs through a discharge opening to a receptacle below. The dough is then transferred to an endless cloth mounted on a carriage which runs upon wheels along rails over the " bake stove " or hot plate; as the carriage moves forward, the cloth is drawn over rollers, and the dough deposited upon the bake stove. It is afterwards moved to a second stove to be baked on the other side.

[Printed, 10*d*. Drawing.]

A.D. 1864, March 4.—N° 553.

SMITH, FREDERICK. — " Arrangements and construction of " ovens."

The oven is of considerable length, but not very deep from front to back. There may be two or more doors in the front, and if preferred a similar number in the back. The fire is at one end, and the flues lead over the top, down the opposite end, along the bottom, and thence to the chimney. The *bottoms* of the flues are formed of fire-tile. On these are built brick piers extending partly across the oven from each side alternately, so that the products of combustion are forced to traverse backwards and forwards across the oven. The tops of the flues are also of fire-tile, supported by **T** girders. The top of the oven is similarly supported by **T** girders, and one arm of the **T** projects downwards to prevent the rapid passage of heat, steam and "gaseous products." Doors in the flues are provided, or some of the tiles may be arranged so as to be removed and give access to the flues. Over the tiles forming the crown of the oven, iron plates may be affixed. Gas burners are placed in recesses in the front corners of the oven, with reflectors behind them, and glass plates before them, so that they can throw their light into the oven. The recess in which is the oven door, is continued upwards to a height sufficient to allow a man to stand therein. "An inclined iron plate, forming an auxiliary flue" is placed "just over" the oven door to carry off steam, etc.

As a modification, the flues and furnace can be so arranged that the products of combustion pass into either the upper or lower flue direct from the fire. The fire-place is lowered to the level of the bottom flue, and dampers are arranged at each end of the oven, so that the products of combustion may pass as in the first description, or may pass along either flue, and thence to the chimney.

[Printed, 1*s*. Drawing.]

A.D. 1864, March 12.—N° 621.

SIMESTER, Hugh, and BAINBRIDGE, John.—Stoves and fire-places.

The object of the invention is to enable the greater part of the smoke to be consumed in stoves and fire-places. A kitchen range is described. The bars of the fire-place are vertical and tubular, they open at top and bottom into two boxes extending along in front of the grate. The lower box has apertures outside, open to the air; the upper box has apertures towards the fire. The air is drawn up through the tubes to the top of the fire. The products of combustion are drawn downwards and pass into a chamber at the side, into which air is admitted by pipes from an air-space below it. In this chamber combustion takes place. From it flues pass round an oven at the side. A similar chamber for combustion is fitted below the fire-place, and into it a portion of the products of combustion flows. Flues lead from it round the boiler, which is disposed on the opposite side of the fire to the oven. This chamber is supplied with air by tubes passing under the fire-place and supporting a tile which forms its bottom. Some modifications may be made in the disposition of the combustion chambers and flues.

Other stoves for warming and ventilating are described.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1864, March 16.—N° 677.

DAUGLISH, JOHN. —" Manufacture of aerated bread."

Improvements upon No. 2293, A.D. 1856, and No. 2224, A.D. 1857.

The object of the invention is to provide a means whereby the dough can be made to expand gradually instead of suddenly, after being kneaded under pressure.

A chamber is provided capable of withstanding pressure. It is furnished with a double endless chain passing over pulleys upon which dough receptacles may be placed to be carried from end to end of the chamber. By means of an opening in the top, the chamber can be put into air-tight communication with the mixing trough. Each receptacle is brought under this opening, filled with dough and moved on. When all are filled, the gas which has previously been forced into the chamber is allowed to escape gradually, and the dough rises. The pressure must at first be a little less than that in the mixer, and it is kept at the same point by means of a loaded safety valve. An air-tight door is provided, through which the receptacles can be placed in and removed from the chamber. A plate of glass is fitted so as to allow the operator to see when each receptacle is full, or an automatic arrangement may be adopted. A single way plug cock is made with a passage of capacity to hold the amount of dough required. Within the passage slides a piston which is prevented from passing out of the passage by stops. Instead of having endless chains as above, the chamber may be made annular, and have a similarly shaped plate or floor moving on friction rollers and driven by a rack and pinion. Or it may be cylindrical, and the whole floor may rotate on a central spindle. To economise gas, two chambers discharging into one another may be used alternately.

Another apparatus for the same purpose is described. A cylinder is attached to the discharge apparatus of the mixer. Within it works a ram or piston which has an alternate up-and-down motion given it. A "cup leather" is fitted to the lower end of the cylinder, to ensure the ram's working air-tight. A little water is injected between the ram and cylinder at each stroke, for the same purpose. A dough receptacle is placed on the top of the ram. It is driven up into the cylinder, compressing the air as it goes. When it reaches the top, the discharge apparatus is automatically worked, and the receptacle is filled with dough. The ram descends, and as it falls the air expands and the dough rises till it leaves the cylinder fit for baking. The receptacle is removed by hand and an empty one substituted.

[Printed, 1*s*. 10*d*. Drawings.]

A.D. 1864, March 22.—N° 717.

McMORRAN, Joseph.—"Machines for cutting suet."

The inventor says:—"In carrying out my invention I employ " a cylinder and a central revolving shaft or spindle supported " at both ends therein, somewhat similar to ordinary mincing " machines, but instead of arranging the propellers (which force " the suet against the knives) in a spiral form round the spindle " I arrange them in a straight line (or nearly so) and I prefer to " make the said propellers straight instead of curved. The " knives between which the propellers pass are in the form of " nearly half a disc, and are placed at one side of the cylinder, " whilst at the other side is a fixed comb which clears the cut " suet from the propellers as they pass upwards through it. " Immediately below this comb is a longitudinal opening in the " side of the cylinder through which the cut suet falls as it is " freed from the propellers by the comb. This machine is particularly designed and adapted for cutting suet, but it will be " evident that it may also be employed for cutting meat for " hashes, stews, pies, or other purposes, and also for cutting " vegetables and other substances."

[Printed, 8*d*. Drawing.]

A.D. 1864, March 23.—N° 729.

DESFORGES, Hilaire, and SONNET, Eugène Charles. —(*Provisional protection only*.)—Gridiron.

The gridiron is "composed of a double series of bars so "distributed that the under range in contact with the fire may "correspond with the spaces existing between each bar of the "upper range, on which is placed the meat to be cooked. The "bars of the upper series are made of a Λ form, allowing the "juices of the meat to flow freely into the longitudinal U-shaped "channels formed in the bars below, by which these juices are "carried to a transversal reservoir cast at the front extremity of "the gridiron. The complete apparatus may be made of two "separate grating frames hinged together at one end and overlaying each other when in use, or again, may be formed in a "single piece, the relative positions of the upper and lower bars "being in either case maintained as above described. The form, "dimensions, material, and general details of construction may "of course be varied as desired."

[Printed, 4*d*. No Drawings.]

A.D. 1864, April 14.—N° 937. (* *)

STEVEN, Thomas, and BATTY, Charles.—"Improvements "in arrangements and apparatus for ventilating, for protecting "from heat, and for heating and cooking."

In "kitcheners," "thin vertical or other tubes are used for "the front fire-bars." "An open horizontal space is formed "above the fire-bars, and at the top-side of this space there is an "inclined plate which" "causes entering air and that issuing "from the tubular bars, if such are used, to be directed downwards into the fire. An L-shaped boiler is applied at the back "of the fire at a level a little above the bottom fire-bars so that "some of the ignited fuel may be under it, and air induction "tubes are fitted to the sides of the fire space and into the flue "above the oven to improve the combustion. The ash-pit is "divided into a back and a front space, and a door or slide is "provided to stop the inlet of air at the back space when a great "heat is not wanted."

A "cheaper kind of cooking range" is formed with "a flange "projecting from the oven side near the back of the fire, so that "a part of the fire may be under and behind it, a portion of the "fire gases also passing up behind it; and "with" a division "plate in the space above the oven, so that the top plate of the "latter can be used as a hot plate for cooking purposes." In order to support a cooking utensil over a small amount of fire, a "fall-down bar" is so arranged in front of the grate "that it "can fall either inwards or outwards."

[Printed, 2*s*. Drawings.]

A.D. 1864, April 15.—Nº 945.

NORMANDY, ALPHONSE RENÉ LE MIRE, DE.—"Ships' "hearths or cooking apparatus."

The whole apparatus is constructed of cast or wrought-iron plates made with flanges so that they will fit and hold together without bolts or screws, though a few of these are used for greater strength. The exterior case is rectangular, and the top forms a hot-plate with openings for cooking vessels. The fire-place is lined with fire-brick. The "bottom below the ash-pit" is closed, and there is a space between the bottom of the ash-pit and the outer case, through which the products of combustion pass. There may be an oven on one or both sides of the fire. If there are two ovens, the products of combustion pass over one oven, down the side, under the oven, under the fire, then under and over the second oven and to the chimney. Or the draught may be divided and pass round each oven to the space under the fire and thence to the chimney. The waste heat may act on a boiler above the ovens. With one oven, the products of combustion pass over and under it to the space under the ash-pit, and by a flue up the back of the fire-place to the chimney, or else direct to the chimney. Dampers are used to regulate the draft. Guard rails are fixed round the boiler.

[Printed, 1*s*. Drawings.]

A.D. 1864, June 1.—Nº 1358.

HUMPHREY, CHARLES ROBERT, and HASLER, JOHN.—"Apparatus for preparing dough."

"Mixers or stirrers" are fitted radially on a central spindle. The ends of this spindle work in bearings on two arms outside the trough. The opposite ends of these arms are fitted loosely upon the main driving shaft, which motion is communicated to the spindle by gearing. By this means the kneading apparatus may be raised from, or let down into the trough. Or these carrying arms may be fitted on a spindle, on which the driving gear runs loose. On each end of the stirrer spindle is a pinion. When the mixing is finished, these pinions are put in gear with racks, and the revolution of the spindle causes it to be raised along the racks. The sides of the trough have curved slots through which the ends of the spindle pass. These slots are closed by slides actuated by the spindle. To the arms above mentioned is fixed a bar which passes across the trough. This bar carries a number of "fixed stirrers" between which the revolving stirrers pass. These last are "of some width" and fixed "alternately in opposite angular positions" on the spindle, so as to drive the dough backwards and forwards. The stirrers are fixed upon the spindle "by means of a slotted boss," so that any of them can be removed to adapt the apparatus to troughs of various sizes.

[Printed, 10*d*. Drawings.]

A.D. 1864, June 2.—N° 1374.

CLARK, WILLIAM. — (*A communication from Henri Adolphe Archereau.*)—Heating matters for distillation.

The invention appears to relate principally to distilling, but among fifty-three very various purposes to which it may be applied, baking bread and "alimentary substances" is mentioned. It "consists in heating in closed vessels without contact of atmo-" spheric air the materials which are to be submitted to distilla-" tion," etc., "by using almost exclusively as media or vehicles" of the heat" "the volatile substances which are evolved from" the substances under distillation," etc., "or the non-oxydizing" gases with which they may be surrounded." A kiln or oven for baking, etc. is figured and described. A flue brings heat from a furnace to a "superheater" "formed of a dome filled with fire-" proof materials arranged helically and furnished with spaces" throughout." The products of combustion pass down through this "superheater" and away by a flue under the oven to a chimney. When the "superheater" is sufficiently heated, the supply of hot air, etc. is cut off, the flue at bottom closed, and a passage opened between the "superheater" and the oven. Into this passage a jet of "gas or vapour" is thrown." The "gas or" vapour" passes amongst the matters to be baked and away at the bottom of the oven to a chimney. A steam jet in the chimney assists the draught. When one "superheater" is cold, another is substituted. The advantages of the process as applied to baking are not particularly specified.

[Printed, 2*s*. 2*d*. Drawings.]

A.D. 1864, June 24.—N° 1588.

GUY, William Augustus, EDWARDS, Edmund, and MACARTHUR, Richard Waugh.—" Apparatus for the manufacture " of bread."

The mixing vessel is spherical and has openings which can be closed air-tight for admitting the materials. Carbonic acid or other gas may be driven into it by means of force pumps, or admitted from vessels in which it is generated under pressure. The kneader is composed of a ring, of diameter slightly less than that of the vessel, carrying cross-bars, and either working on an axis, or having at one side a pin which takes into a recess in the side of the vessel, and on the opposite side a square hole into which the end of the driving shaft fits. To the bottom of this vessel a discharge apparatus is fitted. A " curved flange " is arranged, against which works a " band " of similar curvature turning on a centre-pin. A recess in the band holds the required quantity of dough. This recess is brought opposite the discharge opening and filled with dough, the " band " is then moved, so as to close the aperture, and the recessed portion is thus carried further in so as to drop the portion of dough. More than one recess may be made in the " band." Or a conical vessel with its larger end downwards, may be attached to the discharge opening. This vessel is closed at top by a cock, and at bottom by a hinged plate. The cock and plate are connected by levers, so that the plate is kept closed until the cock is shut, when it opens and discharges the portion of dough contained in the conical vessel.

For generating the gas, a vessel is used in which work agitators on a central shaft. It may be replenished with chalk and water and dilute acid from closed vessels above it, or the materials may be placed in separate vessels and forced into the generator through pipes discharging near its top, by pumping air or gas upon the surface of the liquid in the vessels; or a jet of high pressure steam is used with " Giffard's patent injector." Also the gas may be made in any convenient manner and stored in a gasholder whence it is pumped in by several pumps arranged so that their power increases as the pressure of gas increases. For this purpose a large and a small pump may be worked from cranks on parallel shafts. These are worked from a shaft intermediate of them, and carrying pinions of different sizes. This shaft slides so that the pinions may engage with wheels of different sizes, first on the shaft of the larger and then on that of the smaller pump. The hydraulic cylinder, described below, may also be used as a force pump. The gas may be generated from muriatic acid and carbonate of soda, so that the resulting salt may be used in making the dough.

When the kneading is completed, and the dough expelled, the gas in the mixing vessel may be discharged into another mixing vessel supplied with materials for dough-making, and the rest into a cistern filled with liquor ammoniæ, by which it is absorbed, or back to the gasholder; or else the whole of the gas is pumped into an "hydraulic cylinder," in which a piston floats upon a column of water. This water communicates with water in a cistern in which pumps work to force the water under the floating piston. The cylinder communicates at the top with the mixing vessel. By this apparatus, the gas may be drawn off, or driven into the mixing vessel. The cylinder is of sufficient size to allow the gas to expand till it is of the same pressure as the atmosphere. The piston may have a deep flange which works in a groove filled with mercury, to render it air-tight, and prevent absorption of the gas by the water, or a flexible diaphragm may be used instead of the piston, or oil or other liquid may be used instead of water, or the same water may be continually used. The whole apparatus may be worked by hand.

[Printed, 1*s*. Drawing.]

A.D. 1864, June 24.—Nº 1589.

MACARTHUR, Richard Waugh, GUY, William Augustus, and EDWARDS, Edmund.—"Manufacture of dough and " bread."

The chief part of the invention consists in "raising of dough " for bread, cakes, biscuits, or other farinaceous compounds by " causing carbonic acid or other gas in it (whether formed by the " aëration of the water with which such dough is mixed under " ordinary atmospheric or greater pressure, or by the generation " of such gas in the dough by chemical action, or by ordinary " fermentation) to expand by removing the pressure of the " atmosphere from it."

Dough is made in any suitable manner with carbonic acid gas. When finished, it is cut into pieces of convenient size as it is discharged from the mixing vessel. This discharge is effected by the pressure of the gas, by mechanical, or other means. The cutting may be performed by wires or knives, or otherwise. The pieces are placed in moulds or receptacles, and conveyed to a receiver from which the air is then partially exhausted. The dough then rises. This exhaustion may be accomplished by pumps or by a condensing apparatus with a pump to remove the water. The receivers are conveyed to an oven. Air is admitted during the baking. The receiver may form part of the oven, so that the dough is placed at once in the oven. The bed of the oven may be circular and revolve. "Superheated steam, or water, or oil, instead of the direct action of fire" may be used for baking. The receivers are made each with an air-tight door, and a cock through which the air is exhausted. When they are connected with the oven, the oven is made with a cover. This is made air-tight by a strip of flexible material, or it has a flange sliding in a groove of mercury, etc., more than 30 in. deep. The pieces of dough may be passed into a heated tube or chamber, from which the air is then exhausted. When the dough has risen, and a slight crust has been formed, the pieces are removed to an oven.

[Printed, 8*d*. Drawing.]

A.D. 1864, June 25.—N° 1602.

DENIS, CHARLES.—"Gas-heating or cooking stoves."

The apparatus consists of a closed box or chest, round the bottom of which runs a gas-pipe fitted with burners. Along the pipe one or more rows of holes are arranged in the side of the box for the admission of air. There is a moveable cover above, in which are air-holes to allow the escape of steam, etc. The matters to be cooked are supported on a gridiron, or a spit, or otherwise. Below is fitted a dripping pan.

[Printed, 10*d*. Drawing.]

A.D. 1864, June 27.—N° 1610.

STEEVENS, WILLIAM.—(*Provisional protection only.*)—"Carts, "conveyances, and waggons."

The cart is intended for many military and other purposes, including that it may be made "available for cooking operations "for large numbers of men by steam." The axle passes through the body of the cart, so that the weight is carried below. The horse "is brought back close to the axle, with covered space over his "back, so that the weight is equally balanced." There are no traces, and the horse draws from the shafts. A length of wire rope or leather strap is wound round the axle and led to the horse's head. This prevents his moving away, as it winds up as the cart moves. If there are springs, they are "fixed inside." If there are four wheels, the hind axle goes through the body of the cart. The cart may be enlarged "by iron slides at the back." It may be of iron or wood.

[Printed, *4d.* No Drawings.]

A.D. 1864, June 28.—Nº 1614.

TINKER, CHARLES JAMES.—"Manufacture of lozenges."

For mixing the paste, a cylindrical or conical pan is used, open at top, and having below a discharge aperture closed by a valve or tap. A vertical shaft rotates in the vessel. It carries a series of arms arranged to feather by means of rods connecting them to a lever above the pan; or the arms may be fixed to the spindle, and there may be a sieve near the bottom of the vessel with a brush arrangement attached to the spindle to drive the paste through the sieve.

For rolling the paste, a table slides intermittently on suitable framework, and over it work rollers which have a reciprocating as well as a rotary motion. They slide horizontally in bearings. On the table is a rack into which a pinion on each roller gears. There are also "ordinary rollers." To regulate the thickness of the sheet, the rollers are adjustable in height. The rollers are cleansed by scrapers "in form of dishes and spouts" which receive the scrapings.

For polishing the sheets of paste, a frame is fitted with rubbers of leather, felt, etc. This frame has a "compound circulating "and reciprocating motion." It is placed over the paste on the table, and pressed on it by weights or springs. Above the frame are a sieve and a hopper, by which sugar, etc. is distributed over the paste.

For cutting out the lozenges, a travelling table has over it rollers to level the paste and "a series of spring cutters mounted "in a framing which is capable of turning on its own axis, and "to which a stamping or rising and falling motion is given by "crank or cam." The cutters have a slight rotary motion to clear themselves from the paste; they work through a perforated plate. The lozenges pass up through them, and their upper ends are bevelled, so as to discharge the lozenges on to a travelling apron. The frame may be placed on any angle to the sides of the table, so as to cut with the least waste. Or a stationary perforated table fitted with similar cutters may be used, and the paste fed to it by an endless cloth. The lozenges are pushed out of the cutter at the side by pushers suitably actuated. To cleanse the cutters, " tapered bags or plugs " of india-rubber are stretched over spindles on a frame so formed that they fit into the cutters. The spindles are rotated by gearing, or each cutter may be cleaned by hand with a similar "plug." When thin lozenges are being cut, the cutters may be cleansed by driving them down on a sheet of india-rubber or other material " saturated " with water.

There are fourteen sheets of drawings attached to the Specification.

[Printed, 7*s*. Drawings.]

A.D. 1864, June 29.—N° 1624.

FRIELINGHAUS, CHARLES.—(*A communication from Ignatz Beu.*)—Manufacture of starch and yeast.

Two frames of iron wire are covered with straw and that again with canvas. These are arranged on suitable supports so as to slide backwards and forwards with the canvas surfaces in contact. The sliding motion is given them from a rocking lever. Dough is rubbed between the two surfaces, and during the process water is sprinkled on the top of the upper frame, and passing through both frames carries away the starch, which is afterwards dried. The residue is mixed with 4 quarts water at 54° Fahr. and 1 oz. " crystallized tartar " for every 20 lbs. This is put to stand for an hour. 6 lbs. " finely ground barley," and 6 lbs. "fine rye flour," or instead of the latter, 4 lbs. " of the water drawn off from the " starch," are mixed with 20 lb. water at 175½° Fahr. (and, it would appear, added to the former mixture), and worked up till the whole is 112½° Fahr. It is then covered for an hour. Next it is stirred for half an hour, and then left uncovered to cool. " One pound of beer yeast, and one ounce of carbonate of am- " monia " are then mixed with " a point of lukewarm water." When this is in a state of fermentation it is mixed with the former preparation and the whole stirred. It is then dried by a centrifugal machine and stored.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1864, July 1.—N° 1640. (* *)

PLIMSAUL, JOHN.—(*Provisional protection only.*)—" Fire-bars, " lumps, and gratings for cooking stoves."

These are made hollow, in order to allow water from a tank or boiler to circulate through them, "and thereby prevent the burning out of these parts."

[Printed, 4*d*. No Drawings.]

A.D. 1864, July 4.—N° 1660.

TOMKINS, ALFRED SAVILL.—"Camp stoves for cooking."

Four ovens are arranged in the form of a cross with a square space in the centre. They may be placed in a pit sunk in the ground, or may be banked up with earth, etc. In either case a space is left under each oven through which air may pass to the central space in which the fire is made on a grating supported a slight distance from the ground. Over the fire and resting on the tops of the ovens, but slightly raised from them, is another grating, and on this again an iron plate forming a hot plate may be put, or one or more boilers. Any of the air passages may be stopped with sods of turf, etc. as required to procure a proper draught. The whole apparatus packs up into a small space, the ovens fitting one inside the other, and the cooking vessels being placed within the smallest oven.

[Printed, 1*s*. Drawings.]

A.D. 1864, July 8.—N° 1701.

ROGERS, ABRAHAM.—"Supplying fuel or heat to steam boiler " or other furnaces."

A coke oven is attached to an ordinary furnace so that the products of combustion from the oven will pass into the furnace and be consumed. Furnaces may be "converted into coke ovens " by charging them with coal in a similar manner and igniting " it at the front or feeding end."

Among other purposes, the invention is applicable to bakers' ovens. No other part of the Specification has reference to the present series.

[Printed, 4*d*. No Drawings.]

A.D. 1864, August 8.—N° 1970.

JOHNSON, JOHN HENRY.—(*A communication from Edouard Prosper Malaport.*)—"Apparatus for cooking eggs."

"It is proposed to combine with any convenient holder capable " of containing one or more eggs a thermometer enclosed in a " tube which is open on one side to show the degrees or gradua-

" tions. It will be found that three different graduations will be " sufficient, ranging from 163½° to 167° Fahrenheit, inclusive, " such being the temperatures at which eggs are properly cooked. " In using this apparatus it is placed with the eggs in a vessel of " water of the ordinary temperature, which water is then to be " heated in any convenient manner, and the thermometer watched " until the mercury has risen to one or other of the graduations " above referred to, according to the extent to which the eggs are " to be boiled, when the holder is to be removed from the water, " and the eggs will be found to be perfectly done."

[Printed, 8*d.* Drawing.]

A.D. 1864, September 3.—N° 2164.

STANDISH, Charles William. — (*Provisional protection only.*)—" Apparatus for boiling eggs."

The inventor proposes "to construct a small wire frame, of a " circular form by preference, and to divide the same into a series " of circular divisions of wirework of the average diameter of " the eggs; the frame is supported by three or more vertical " wire legs, having heavy feet of lead or iron, such as a bullet; " the frame is also connected by a central rod or twisted wire " ascending to a handle, beneath which, in a loop or oval" is suspended " a sand glass in a pivot, so that its position may be " reversed alternately to allow of the passage of the sand from " one globe to the other as usual. Below the circular divisions " for the eggs and attached thereto are a pair of curved wires " crossed to support the eggs in the divisions."

[Printed, 4*d.* No Drawings.]

A.D. 1864, September 10.—N° 2220.

WATT, Alexander.—" Apparatus to facilitate the removal of " the ends of eggs."

A metal or porcelain plate is "formed with an opening of such " size and shape as will allow of the end of an egg desired to be " removed being passed through it, which end may then be " removed by drawing the blade of a knife along the surface " of the plate, and across the opening on that side of it from " which the end of the egg to be cut off protrudes, the egg " meanwhile being held in an egg cup or otherwise supported."

To protect the fingers there is a "guard or stop." "That part "of the plate which contains the opening may be formed flat, or "in some cases it may be dished, or may have a raised edge," and "a portion of the plate" is formed "as a handle, or a handle "may be attached to the plate" "and the plate may be formed "with legs or studs, on which it may stand. Instead of using "a separate knife, the apparatus may have a blade or knife "attached to it, applied so that it may be drawn across the open-"ing when required. Such blade or knife may be secured at "one end by pin joint, and may if desired be rendered self-acting "by the application of a spring or springs. Instead of a plate "with an opening, wire bent into a suitable form may be "employed."

[Printed, 8*d*. Drawing.]

A.D. 1864, September 13.—N° 2234.

FISHER, John Martyn.—"Roasting jacks."

"In a metal cylinder open at each end, and placed horizontally "in the breast of the chimney or other convenient part," is inserted "a frame capable of being moved in and out as required "in guides. This frame carries at back a wheel or fan formed "of oblique plates or vanes and mounted on a horizontal spindle "free to rotate in its bearings; on the spindle is a pinion in gear "with a toothed wheel on another horizontal spindle, and on "this second horizontal spindle is another pinion in gear with a "second toothed wheel on a third horizontal spindle. On the "fore end of this last-named spindle a bevil wheel is mounted, "gearing into another bevil wheel on a vertical rod or spindle, to "which the hook or 'dangle' for suspending the joint to be "roasted is attached." In some cases, two additional horizontal wheels are added, which are made to gear into the second bevil wheel, and a "hook or 'dangle'" is attached to the spindle of each of the wheels. "The current of air passing through the "horizontal cylinder into the chimney or flue impinges against "the oblique plates or vanes of the fan or wheel and causes it "to rotate, and the rotary motion is transmitted by the train of "wheels and bevil gearing to the vertical rod from which the "joint is suspended. When required for use the frame carrying "the fan and toothed wheels and bevil gearing is pulled out "sufficiently to bring the vertical rod clear of the cylinder; at

" other times the frame is pushed back and the front end of the " cylinder may be closed by a door or shutter."

[Printed, 8*d*. Drawing.]

A.D. 1864, September 13.—N° 2238.

TAYLOR, SAMUEL JOHN. — (*Provisional protection only.*) — " Manufacture of iron hollow ware."

Among the articles mentioned, are "saucepans, pots, and " basins." The object of the invention is to enable iron vessels to be tinned inside without being first turned in a lathe. The improvements are however applicable to vessels that do not require turning. The process is thus described as it relates to a basin. "I form from sheet iron, by stamping or otherwise, a thin " basin of the shape and size of the interior of the basin to be " made. This thin basin I employ as a lining to the cast- " iron, of which the greater part of the basin is made. I " cast the cast-iron part of the basin in the ordinary way, " excepting that I place the said sheet-iron basin or lining in " the mould in which the cast-iron basin is to be cast, and I " cast the cast-iron basin upon the sheet-iron basin in the " mould. There is thus produced a cast-iron basin having a " lining of wrought iron, the said lining being inseparably " attached to the cast iron. The wrought-iron lining of the " basin may be tinned without being turned in a lathe, as it only " requires cleaning with dilute sulphuric acid or other acid " employed for cleaning iron, when it will readily take the coating " of tin. The basin made in the manner described also receives " a coating of enamel more readily than if the surface to be " enamelled were made of cast iron."

[Printed, 4*d*. No Drawings.]

A.D. 1864, September 15.—N° 2253.

PERKINS, ANGIER MARCH.—Ovens.

The oven is made of three cases of sheet iron, nearly steam-tight, one inside the other and with a small space between. Within the oven are tubes connected with coils in a furnace which is nearly air-tight. It is made of wrought iron and has close fitting doors. An air tube supplies air to the ash-pit. In this tube are two throttle valves, one worked by hand, and the other actuated by a piston working in a cylinder connected with the hot-water tubes, and moved by the pressure within them. A dial to show the pressure is attached to the axle of the valve. To prevent undue pressure, the coils are set "so as to touch each "other on three sides; on the fourth side the coils are a little "separated so as to make the joints readily," and to allow a passage for the heat. "There is a partition of fire-brick placed "between the fourth side and the other three sides." "The "space between the three close sides and the brick partition "forms the fire-place." To keep up the supply of water a pump is used which has two plungers of different diameters. T pieces and sockets with right and left hand screw joints are used in joining the various parts of the apparatus.

Reference is made to No. 13,509, A.D. 1851.

[Printed, 2*s*. 4*d*. Drawings.]

A.D. 1864, September 28.—N° 2379.

POWELL, THOMAS.—"Apparatus used in ovens for baking."

The invention is specially applicable to "railway ovens" in which the goods to be baked are carried through the oven on a travelling apparatus. Instead of solid or perforated metal plates, wire gauze is used, either formed into trays, or in the shape of an endless web working over rollers. If trays are used, they are carried in the usual manner by endless chains, working over drums.

[Printed, 8*d*. Drawing.]

A.D. 1864, September 28.—N° 2389. (* *)

NORMANDY, ALPHONSE.—(*A communication from Alphonse René le Mire de Normandy.*)—(*Provisional protection not allowed.*) —"Improvements in ships' hearths or cooking apparatus."

These are stated to be the same as those for which the communicant "obtained Provisional Protection on the 15th day of April" 1864, N° 945. The apparatus is made of iron plates, "with flanges "and inclines or wedge pieces held together by bolts passing from top to "bottom." "The exterior case is of a rectangular form," and the upper plates have openings for receiving kettles, boilers, or cooking vessels. The fire-place is lined with fire-brick, "and "the bottom below the ash-pit is closed, leaving a space between "the interior of the case and the bottom of the ash-pit" for the passage of the products of combustion. The fire-place "may "have an oven applied on each side of it," made with flanges and projections to fit together with the outer case. The fire-gases "pass from the fire over one oven, and down at the side or end, "then under the oven, and next under the fire-place, afterwards "under and over the second oven, and thence away by a flue; "the waste heat, when desired, being caused to ascend through "or otherwise act on a boiler; or the products of combustion "may be divided, and pass over both ovens and down them "under the ovens and ash-pits and up a flue" "at the back of "the fire-place. When only one oven is employed, then the "products of combustion, after passing over and under the oven, "pass away up a flue at the back of the fire-place from the space "below the ash pit, and thence to a chimney, the waste heat "being applied, when desired, to heat a boiler."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 11.—N° 2499. (* *)

GILLINGHAM, Moses, and GILLINGHAM, Thomas. — (*Provisional protection only.*)—"Improvements in baking apparatus."

The furnace is placed directly beneath the oven, and the flue passes out at the other end of the grate "leading into the oven, "and passing out upwards at a short distance within the oven "door." At each side are two smaller flues running up the sides and uniting in the main flue at a distance above the top of the oven. The main flue is closed by a damper "when the side flues "are used," and another damper is placed a short distance below where the side flues enter, and these are also furnished with other dampers to be closed when the oven is to be heated by the main flue. Between the top of the furnace and the floor of the oven is "an air chamber communicating with the external "atmosphere" by gratings. The flues have soot doors, and the furnace and oven have the usual doors and ash-pit.

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 13.—N° 2530.

BATKIN, Joseph.—"Bean slicer."

A series of parallel steel blades are set in a small block of brass or other metal fixed to the end of a handle. The blades are all separate and have each a shoulder. They are kept in their place by a screw.

[Printed, 6*d*. Drawing.]

A.D. 1864, October 24.—N° 2635.

BOUSFIELD, George Tomlinson.—(*A communication from Struben Taylor Bacon.*)—"Manufacturing aerated bread by the "application of carbonic acid gas obtained from fermenting "vegetable matters."

Improvements upon No. 2293, A.D. 1856. "Apparatus for "fermenting wash" for making beer, wine, vinegar, etc., is combined with the machinery for making aërated bread. A fermenting tun of the ordinary description is fitted with an air-tight cover. Suitable openings for access are provided, and it may have "attemperators" consisting of coils of tubing through which hot or warm water flows. The discharge pipe for the gas is fitted with a three-way cock, so as to discharge either into the air or into a receiver. The suitable vegetable material prepared for fermentation is placed in the vessel; the cock is left open till all the air is expelled by the gas generated, and then the vessel and gas holder are put into communication. Between the generator and the holder is a purifier in which the gas is washed by being passed through water.

[Printed, 10*d.* Drawing.]

A.D. 1864, October 26.—N° 2646.

DUTRULLE, Peter. — (*A communication from Jean Jacques Grosheing and Auguste Sheurer.*)—"Manufacture of syrups."

The inventors say,—

"The material we use is potatoe flour; this we dilute with "water to make a paste, and decompose this paste by means of "sulphuric acid, we then boil it; after boiling, the acid is saturated with carbonate of lime, which absorbs the acid that has "been used for the purpose of decomposition and still remains in "the matter. The carbonate of lime in its contact with the acid "produces sulphate of lime, which settles on the bottom of the "vessel, in which the process is being carried on. We then "gently pour off the syrup left on the surface, which we place in "a copper in which a vacuum has been produced by means of a "pneumatic machine. The syrup having gone through this last "process is fit for use. We produce by the above method of "manufacturing a cheaper and superior article to any now in "use, inasmuch as we want a less quantity of sugar in the "manufacture of marmalades, jellies, and other confections, and "articles prepared with these syrups are entirely free from "crystallization or fermentation."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 29.—N° 2684.

KEITH, Bezer Richmond. — (*A communication from John Candler.*)—(*Provisional protection only.*)—"Farinaceous food."

The invention "consists in making a new article of food or "breadstuff by combining the flour of maize or 'Indian corn' "with the flour of wheat. The article obtained by combining "the two substances is not only more wholesome and nutritious "than either of the ingredients, but cooked food prepared from "this article is far more delicious. This article is well adapted "for manufacture into bread, and most other preparations for "which either of the ingredients are now used."

[Printed, 4*d*. No Drawings.]

A.D. 1864, October 31.—N° 2694.

EDWARDS, Edmund.—"Apparatus for mixing and kneading, "and for measuring and discharging dough."

By means of a discharge cock, the dough is measured as it passes from the kneading vessel. If the dough is kneaded under pressure, it is discharged by pressure from the gas. The gas used is preferably made by the fermentation of sugar, etc., and the refuse used for purposes of distillation. Alcohol may be added, or glucose. If the dough is not kneaded under pressure, a special apparatus is used for pressing it out. The kneading vessel has a shaft carrying mixing arms. When the kneading is finished, the dough is removed to a cylinder within which works a piston to drive out the dough; or the kneading vessel may be cylindrical, and the shaft be capable of being removed and replaced with a piston. The measuring apparatus consists of a four-way cock, which puts the vessel containing dough in communication with two cylinders alternately, and these cylinders in communication alternately with a discharge opening. In each cylinder works a piston, and the two pistons are connected together by rods in such a way that when one piston is at the inner end of its cylinder the other is at the outer end of the other cylinder. The dough when admitted into one cylinder forces the piston to the further end, and by the connecting rod the other piston is drawn to the inner end of the other cylinder. The cock is now turned, dough passes into the second cylinder, forces its piston out, and so draws up the piston of the first cylinder, which expels the dough from that cylinder through the discharge opening. Also a single cylinder and a three-way cock may be used, and the dough expelled by a spring or otherwise. It is said that the discharge cock may be actuated by means of a weighted lever, worked by catches on the connecting rods of the pistons, but it is not stated how these are to be set in motion. For weighing the dough a scale beam is used. One end carries a vessel which is filled with dough from a discharge cock. The other arm has a weight, sliding on it. When the dough weighs down the opposite weight the arm falls, the weight slides down, and the vessel of dough is tilted on to an inclined plane down which it slides, while the weight resumes its former position.

[Printed, 10*d*. Drawing.]

A.D. 1864, November 4.—N° 2732.

BAUWENS, FELIX LIEVIN.—" Cooking food."

The improvements are described as follows :—

" My process consists in the use of steam at any degree above
" 212° Fahrenheit, conjointly with an oven or other apparatus
" heated by fire, or separately, by the exclusive use of super-
" heated steam, without an oven or other apparatus heated by
" fire for the purpose of cooking food, such as meat, vegetables,
" and fruits. When using an oven or other apparatus heated by
" fire I let a small jet of steam go freely into the oven or appa-
" ratus through a pipe perforated with holes. When using
" superheated steam alone I let a small jet of steam enter a
" closet inclosed in a non-conducting caloric chamber. In both
" cases I fit a pipe for the steam to escape from the oven, or
" apparatus, or closet. In both cases I also ascertain the tem-
" perature of the said oven, or apparatus, or closet, by a
" thermometer passed inside with the indication outside, so as to
" be able at all times to ascertain the degree of heat inside
" them."

[Printed, 4*d*. No Drawings.]

A.D. 1864, November 24.—N° 2938.

KEILLER, WEDDERSPOON.—(*Provisional protection only.*)—
" Preparation of marmalade and similar condiments."

The fruit is crushed between rollers. Over the rollers is a hopper, and below them a trough, at one end of which they are fitted. They are geared together, and driven by a handle. The end of the trough below them is fitted with a perforated moveable false bottom, on which the pulp is received, while the opposite end is deepened to hold the juice, which can be drawn off. In each roller is a frame, which works in a slot passing through the plane of the axis. This frame is slightly broader than the diameter of the roller. The slots in the two rollers are at right angles. This frame forces down the fruit between the rollers, and is driven back by the opposite roller when it comes in contact with its periphery, so that one side is always flush with the periphery of the roller, while the other side projects. The pulp from this machine is steamed and passed through a sieve into a receptacle wherein work arms on a shaft. By this means the liquid portion is separated and it strains off through the sides of the vessel, which are perforated.

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 3.—N° 3013.

BROOMAN, Richard Archibald.—(*A communication from François Alphonse Jacquet.*)—(*Provisional protection only.*)—"Heating and cooking by gas."

The apparatus for heating "consists of a row of gas jets and " of a simple jet set near the end of the row, of a space for " storing up the heat and of a reflector."

"For cooking, the apparatus consists of a metal case; it is pro- " vided with a ring burner with several jets, and above it stages " of double discs which extend entirely across the case. The " double discs are formed with openings in the centre of the " lower plate of the double disc, and with apertures near the " edge of the upper plate through which the heated air passes, " until it finds its exit through a perforated plate in the top of " the case."

[Printed, 8*d*. Drawing.]

A.D. 1864, December 14.—N° 3098. (* *)

WHARLDALL, William.—(*Provisional protection only.*)—"Improved machinery or apparatus for the manufacture of " liquorice cakes, applicable also to the manufacture of other " cakes or lozenges made of plastic materials."

This consists as follows:—Two iron standards, at a suitable distance apart, and parallel to each other, are placed on a suitable table. "Each standard is slotted to permit of a vertical recipro-
" cating motion being imparted to a hollow rectangular bar (ex-
" tending from standard to standard) the turned ends of which
" work within the same." To the under side of this bar is affixed
" a series of cutters (circular by preference), which may be made
" of brass of the diameter required, (or if desired) a brass plate
" may be substituted for the separate cutters, each plate having
" the desired number of holes bored out." To the upper side of the rectangular bar are affixed "as many guides as there are
" cutters immediately over the same," within each guide is placed
" a spindle, free to receive a reciprocating motion, and having a
" stamp or die affixed to the lower end. Small springs are placed
" on each spindle, between the guides and the solid bar, working
" between the standards and guided by the same. A lever from
" the top bar of the apparatus is used at the required time to
" depress the solid bar, and consequently the stamps or dies." The bar carrying the cutters is connected by means of levers to an ordinary treadle.

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 22.—N° 3184.

HOWARD, Robert Luke, and DAUGLISH, John.—
" Apparatus for making aërated bread."

Instead of discharging the dough in measured portions from the kneading vessels, a receiver is provided, into which the dough can be discharged, and from which it can be measured. Three vessels are arranged vertically. The highest is a water chamber, in which water is charged with gas from a gas receiver. This communicates with the second vessel by an "equilibrium pipe," so that the pressure is maintained equally in both. In this second vessel works the kneading machinery, the arms of which are parts of circles "concentric or nearly so with the centre of the mixer." The water vessel and the upper portion of the kneading vessel are constructed of "one continuous piece of metal," preferably iron. The iron is painted with a composition of rosin and beeswax or tallow. A separate vessel is provided in which the water is measured before it is admitted to the water vessel. Below the kneading vessel is the receiver, communicating with the kneading vessel by a valve through which the dough is discharged. It is also connected by an "equilibrium pipe," which keeps up the same pressure of gas in both vessels. To the receiver is attached suitable measuring apparatus, preferably that described in the Specification of No. 677, A.D. 1864.

The pumps for condensing the gas and air, and exhausting them from the mixing vessel are driven direct from the engine shaft. Also portions of the pillars supporting the framework of the apparatus may be made hollow, to serve as receivers.

[Printed, 1*s.* 6*d.* Drawings.]

1865.

A.D. 1865, January 18.—N° 150.

BALLARD, Stephen.—" Method of cooking, and apparatus to " be employed therein."

The following is the entire description :—

"In cooking, and especially in boiling meat and other solid " articles of food, there is great difficulty in properly cooking the " interior.

" Now my invention consists in cooking by the insertion of " hollow skewers or tubes in and through the meat or other " material to be cooked.

" My apparatus consists of a hollow tube fitted with a movable " point and handle to facilitate the insertion in the meat or other " article, which point and handle may be removed prior to the " article being boiled, baked, or roasted. After the cooking the " handle may be applied to remove the tube, if necessary. The " handle and point may be fitted to the tube by screwing or " otherwise. Sometimes I dispense with the movable point."

[Printed, 4*d.* No Drawings.]

A.D. 1865, February 17.—N° 456. (* *)

CHRISTIAN, John Osborne, CHARLTON, John, and CHARLTON, Henry.—" Manufacture of magnesium and its " compounds."

The invention, so far as it concerns this series, consists "in the "application and use of carbonate of magnesia or 'dolomite,' (or 'a carbonate of magnesia or 'magnesite,' combined with any "other carbonate), instead of carbonate of lime or other carbonates, in the generation of carbonic acid gas, such as, for "instance, in the aerating of waters or bread," etc.

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 21.—N° 483.

JOHNSON, John Henry.—(*A communication from Jean Joseph Etienne Lenoir.*)—"Apparatus for kneading or working "dough."

The object is to allow the dough to rest during the kneading, which is carried on "progressively from end to end" of the trough. "Revolving spiral or inclined blades" are employed. These "during their rotation in the dough, are made to travel "simultaneously to and fro from end to end of the kneading "trough. This traverse motion may be produced by causing the "boss of the blades to slide along a square shaft, or along a "feather or keyway on a round shaft by a driving pulley and "belt of its own, or by any convenient arrangement of gearing. "An arm is made to grasp this boss, and through this arm works "a screw shaft extending from end to end of the machine, so "that on imparting a rotatory motion in one direction or the "other to this shaft the arm will move along it, and will carry "with it the blades from end to end of the trough. The screw "shaft is rotated by any convenient arrangement of reversing "gear, or by means of two driving pullies brought into gear "therewith alternately by a sliding clutch box, one of such pullies "being driven by a crossed strap so as to rotate in an opposite "direction to the other. The sliding clutch may be operated "upon by a stop attached to the traversing arm, thus making "the machine itself reverse the motion of the screw spindle. A "clutch lever is also employed for throwing the screw spindle "out of action when required."

[Printed, 8*d*. Drawing.]

A.D. 1865, February 27.—N° 555.

ELLWICK, George Thomas.—(*Provisional protection only.*)—"Apparatus for baking biscuits."

The invention relates to apparatus for conveying biscuits, etc. on a travelling platform or endless web of wire cloth through the oven. It "consists in separating the upper and lower or forward " and return moving portions of the web (either by the employ- " ment of drums of increased size, or by making use of addi- " tional drums) to a greater distance apart than heretofore, and " in making use of an additional furnace or furnaces, or in so " arranging the flues of a single furnace as that both the upper " or forward, and the lower or return moving portions of the " platform or web shall be available, and that biscuits may be " baked upon the upper surfaces of each. The same system of " baking both upon the upper and lower and forward and return " moving portions of the platform, belt, or web may be employed " in connection with steam or hot water apparatus, instead of " a furnace or furnaces for heating the chambers or ovens as " described."

[Printed, 4*d*. No Drawings.]

A.D. 1865, February 28.—N° 562. (* *)

DALSTON, WILLIAM BELL.—(*Partly a communication from John Joseph Riddle.*)—" An improved atmospheric pressure lamp " for the burning of benzole, paraffin, naphtha, or other volatile " oils, which lamp may be used for all the purposes for which " lamps are usually required, either for lighting, cooking, heating " or other purposes."

In this lamp the oil is consumed in the form of gas, and neither wick nor chimney is required. The oil reservoir is below the burner; on the top at one side is an opening (closed by a stopper) for supplying; on the opposite side is an opening for the introduction of an air-pump; and from the middle rises a neck to which is screwed an air chamber. Into one side of the air chamber is screwed an "airway." The air chamber supports a cup (in which a small quantity of alcohol is ignited to start the lamp), and through the cup passes a tube that carries the burner; this is closed at top, but perforated at the side with a row of holes. " The piston valve and other parts of the air pump may be below " or in the oil chamber;" the compressed air forces the oil up a central conduit pipe, whose upper end is contracted and is provided with a heat generator in the shape of a coiled copper wire or a copper cylinder. A pointed regulator passes up the whole length of the conduit pipe; it can be moved up or down by a lever attached to it at bottom and terminating outside the base of the lamp in a handle.

The structure of the air-pump, the action of the lamp, etc. are detailed in the Specification.

Reference is made to No. 12,015, A.D. 1848, and 12,965, A.D. 1850, both of which describe improvements in lamps for burning volatilised hydro-carbons, but not specially adapted for cooking.

[Printed, 1*s*. Drawings.]

A.D. 1865, March 7.—N° 636.

PERKINS, LOFTUS.—Heating apparatus.

Ovens may be heated by means of hot water pipes. These pipes are closed at both ends. They are partly filled with water, and have their lower ends subjected to the action of the fire in a furnace. They are arranged about the top, bottom, and sides of the ovens in any convenient manner. One of the drawings shows a portable oven mounted on wheels and fitted with these tubes along the top and bottom of the baking chamber. At one end is the fire-place, and at the other the oven door. The chimney is made like that of a locomotive, but is hinged so that it may be bent down along the top of the oven when travelling. This oven however is stated not to form a part of the invention. Means for heating and ventilating are also described.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, March 18.—N° 760.

WATHEW, JAMES HENRY.—(*Provisional protection only.*)—
" Machine for peeling or skinning almonds."

"Upon uprights on the bed of the machine two horizontal " rollers are situated, the axes of the said rollers working in " bearings on the said uprights. The said rollers are situated " side by side and parallel to one another, the distance between " them being adjusted by screws. The bodies of the rollers are " made of iron or other hard metal, the said bodies being coated " or covered with a covering of vulcanized india-rubber. Above " the rollers is a hopper in which the almonds to be peeled or " skinned are placed, and below the rollers is an inclined plat- " form upon which the peeled or skinned almonds fall on leaving " the machine. The two horizontal rollers are geared together

" by toothed wheels, the toothed wheel on one roller having a
" diameter double that of the wheel on the other roller, so that
" one roller rotates with double the velocity of the other. Motion
" is given to the rollers by a winch on the axis of that one carry-
" ing the smaller toothed wheel. On giving motion to the rollers
" by the said winch and toothed gearing, and permitting the
" almonds to descend from the hopper and pass between the
" rotating rollers, the peel or skin is removed from the said
" almonds by the pressure of the said rollers and the different
" velocities at which they rotate, the almonds being uninjured by
" the rollers while passing between them by the yielding of the
" india-rubber covering on the said rollers. The peeled or skinned
" almonds on passing from the rollers fall on to the inclined
" platform, and from thence pass to a receptacle placed to receive
" them."

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 21.—N° 792.

BERRY, William.—" Apparatus for cutting bread or bread
" and butter."

A box open at top has a moveable bottom sliding up and down within it. Upon this the loaf rests, and is carried up and down by means of a spring or otherwise. It is raised above the upper edge of the box sufficiently to allow a slice to be cut off by a knife attached to the box, or by hand. Above the box is a second box containing butter. It has a perforated bottom and a plunger worked by a screw or lever to force the butter down upon the bread. This butter box slides on rails or works on a hinge. Its edge spreads the butter over the bread, or this may be done by the cutting knife.

[Printed, 8*d*. Drawing.]

A.D. 1865, March 27.—N° 857.

BURFITT, Charles.—(*Provisional protection only.*)—" Do-
" mestic implement for paring potatoes, apples, and other like
" vegetables and fruit."

" In a suitable holder about 7 inches long " is adjusted " a piece
" of tempered steel, the edges whereof are bevilled so as to form
" cutting edges; this piece of steel " is fixed " at an angle of
" about 30 degrees by grooves or slots to the holder, taking care

" to leave space between said holder and the cutting edge. One
" end of the holder is formed as a handle, and the other end has
" a short pointed blade of thin steel fixed thereinto. To use this
" implement the operator holds the potatoe or apple in one hand,
" and with the cutting implement in the other proceeds to remove
" the peel, using it similar to an ordinary knife, with this advan-
" tage, that whereas by the use of a common knife great waste
" occurs by cutting away too great a thickness of the peel; by
" the use of the above-mentioned improved implement any thick-
" ness of peel can be removed with certainty and ease. The
" pointed end of the instrument is intended to be used to remove
" the eyes or specks from potatoes."

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 28.—N° 875.

THOMAS, FREDERICK.—Kitchen ranges.

There is a space behind the fire-place, and the back of the grate is perforated, or it may be formed of a fire-tile, through which heat can pass. This space is open to the ash-pit, and there are spaces below the oven on one side and the boiler on the other, and beside them; also in connection with the space behind the fire. There is also a space between the top of the boiler and oven and the hot-plate above them. This space may be in connection with the other spaces before mentioned or not. Above the space behind the fire, an additional fire may be lighted under the hot-plate. The flues lead from the inner corners of the range above the oven and boiler to the chimney. The plate above the fire is made in two pieces, one sliding forwards and the other backwards. Suitable dampers are fixed in the flues.

[Printed, 8*d*. Drawing.]

A.D. 1865, April 3.—N° 940.

BROWN, FREDERICK.—Kitchen ranges.

At the bottom of the oven is an iron "conducting plate" attached to a "heating lump" which runs along the side of the fire-place. Above this "lump" is a thickness of fire-brick to protect the side of the oven. At the bottom of the oven, and on the side farthest from the fire, is an air chamber. The top of the oven is heated by a flue passing over it. If there is more than one oven, those most distant from the fire are heated by flues in the usual manner. To increase the heat of the hot-plate a number of pins are cast on its under side and project downwards towards the top of the oven. The plate which shuts in the upper part of the fire in front can be turned down to form a shelf on which cooking vessels can be placed. As there are no descending flues (unless more than one oven is employed) the chimney may be wholly or partly open.

[Printed, 10*d*. Drawing.]

A.D. 1865, April 7.—N° 989.

WELCH, Edward.—"Fire-places and flues."

Some of the improvements are not adapted to cooking purposes. The ash-pan of a kitchen range may be fixed "upon closed solid "brickwork," and a passage may be made surrounding the oven through which the hot air from the ash-pan and from "an "open grid forming the back of the fire," may pass. Brick ovens similarly heated may be fixed at the side of kitchen ranges. A perforated sheet of iron may be fixed at the entrance of the hot air passage. A baker's oven with an iron top and fire-tile bottom may be made "with pipes of communication for the heat to pass "from the bottom to the top, after having previously passed "from the front to the back of the oven, and then returning "from the back to the front" and up the chimney. The oven is heated by a small furnace below. These ovens may be applied to kitchen ranges. In an "emigrant's range" flanges are cast "behind the cheeks of the fire" "to receive the sides, top, "shelves, &c. of the oven" "forming a compact box for transit." These parts are cast in separate pieces, and the fire-box is to be the same as in the first described range.

[Printed, 8*d*. Drawing.]

A.D. 1865, April 12.—N° 1041.

WARREN, Frederic Pelham.—"Cooking utensil."

An inner vessel is placed within an outer one so that its upper portion projects above the top of the outer vessel. Food is placed in the inner one, water in the outer. The steam from the water enters a channel in the side of the inner veesel and passes away without entering the vessel itself. The steam from the food is condensed by the lid and upper portion of the inner vessel. Instead of escaping, the steam from the water may be carried into a third vessel, placed above the others, to steam potatoes, etc. Another pipe is then provided, by which the water resulting from this steam when condensed, runs back into the lowest vessel. The inner vessel may have an interior rim to catch the water from the condensed steam in it. Matters may be boiled in the lowest water vessel. Several utensils may be employed, steam being conveyed from one to all the others. A boiler may supply steam to a series of vessels. A set of vessels may be made square, to fit in a square case, for a ship's galley. A similar arrangement may be adapted for camp use.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, April 17.—Nº 1077.

HALE, ALBERT WARD.—Mincing machine.

Improvements on No. 2896, A.D. 1859.

The machine resembles that described in the above specification. It consists of two grooved rollers revolving in a grooved case. The edges of the grooves shear against a knife intermediate of the rollers. The grooves grow shallower to cause the meat to be cut finer as it is carried on. The improvements are intended to render the machine more adapted for cutting suet and like substances which tend to clog its working. The flanges on the rollers are made "of a greater diameter and thicker" at the feed than at the discharge end, while they also overlap more. The material collected in the grooves is thus compressed and carried forward.

[Printed, 10*d*. Drawing.]

A.D. 1865, April 20.—Nº 1106.

ROBINSON, WILLIAM.—Roasting jacks.

"A crank or its equivalent is applied to the last axis or wheel
" of an ordinary train used in constructing such jacks. To this
" crank or instrument a connecting rod is attached, which at its
" other end carries a screw nut, which with the connecting rod is
" guided by suitable guides in the to-and-fro motion communi-
" cated to the connecting rod; the screw nut is thus moved to
" *and fro* along a screw shaft or axis, by which such shaft or axis

" receives an alternating rotatory motion. To one end of the " screw shaft or axis the ordinary suspending yarns are attached, " and to the other end of the screw shaft or axis the ordinary " suspending apparatus for the meat or other article is attached."

Dimensions and details for the construction of the apparatus are given.

[Printed, 8*d*. Drawing.]

A.D. 1865, April 20.—N° 1108.

BETTS, John Yeldham.—Baking bread, etc.

Steam is supplied to the oven at the commencement of baking for 15 minutes or less. It may be admitted at the time of charging the oven or before. It is to be supplied through a pipe pierced laterally "just above the dough, or near to the roof of " the oven." By this means a number of horizontal jets are thrown into the oven, without their striking on the articles to be baked.

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 4.—N° 1244.

SMITH, Edward Grainger.—"Apparatus for shelling peas " and beans, stoning fruit, and other similar purposes."

The peas, etc., to be shelled are fed between rollers which press out the peas, but allow the shells to pass through. Thus the peas fall on one side of the rollers, and the shells on the other. The rollers are covered with india-rubber or other yielding material. The shoot from which the peas are delivered is mounted at the delivery end on an arm hinged to the frame of the apparatus, and at the other end rests on the end of a lever, the other extremity of which is held down by a spring. Tappets on the roller shaft act on the arm, so that a "jogging" motion is given to the shoot which carries the peas along it. Its bottom is corrugated to guide the course of the peas. It delivers on to an endless band which carries the peas to the rollers. For cutting beans, etc., cutters are placed "in front of the rollers." "Various modifications," not described, adapt the machine for different purposes. Any apparatus for separating large and small, or light and heavy peas, may be added to the machine.

[Printed, 10*d*. Drawing.]

A.D. 1865, May 15.—N° 1346.

DAUGLISH, John.—Ovens.

The ovens in question are "travelling" ovens. They are built in sections, each section forming a separate oven with furnace, etc. To prevent steam, etc. from escaping, at the end at which the oven is charged, are double doors, one sliding, and the other, which is curved so as to form a sort of "hood," hinged. Between these doors there is space for a batch of loaves, and the travelling apron extends beyond the inner door into this space. They are actuated from the rollers in the oven so as to open and close alternately, and the motion of the whole apparatus is intermittent, so that the outer door remains open and the inner closed sufficient time to allow to allow the loaves to be placed on the end of the travelling apron, while the inner door remains open, and outer closed sufficient time to allow the loaves to be carried into the oven. At the discharging end, the apron delivers the loaves on to an inclined plane, down which they slide on to a trap-door with a counterweight. The loaves falling on this door, open it, and it immediately closes by the action of the counterweight. Windows are fitted into the ovens.

[Price, 1*s*. 8*d*. Drawings.]

A.D. 1865, June 2.—N° 1520.

KENT, George, and WEST, William Hayward.—(*Provisional protection only.*)—"Apparatus used when boiling milk."

"This invention consists in applying to vessels in which milk "is boiled, apparatus so constructed that the milk shall be caused "to flow up the interior of the apparatus over the top thereof "and descend down the outside, by which the milk will be pre- "vented boiling over the vessel in which it is boiled. The appa- "ratus is of a conical shape, and by preference the exterior and "interior are each somewhat of a carved form from top to bottom, "and are not composed of straight lines from top to bottom, as "is the case with a true cone, but the form or vertical section of "the apparatus may be somewhat varied. The height of the "conical apparatus is greater than the depth of the vessel in "which it is used. The lower part or base of the conical appa- "ratus is formed with a series of passages of a semicircular or "other suitable shape. The conical apparatus may be made of "various materials, but it is preferred to be of glazed earthenware

" or china. When using apparatus such as above described it " should be placed in a vessel, the diameter of which is only " slightly larger than the diameter of the base or bottom of the " conical apparatus."

[Printed, 4*d*. No Drawings.]

A.D. 1865, June 20.—N° 1649.

MINGAUD, PHILIPPE.—(*Complete Specification, but no Letters Patent.*)—Obtaining jams, etc. from the arbutus unedo.

To make jelly; take an equal weight of water and fruit and boil together for an hour; run the mixture without squeezing through a linen cloth; add half the weight of sugar, boil to a proper thickness and flavour with "vanilla and the essence of " the flowers of the arbutus."

Or, press the fruit through a horsehair sieve, then strain it through a linen cloth, add a third of its weight of sugar; boil for a short time and flavour with the essence of the flowers.

To make jam; boil the fruit in double its weight of water for an hour; pass it through a linen cloth, and put it in a vessel with a third of its weight of sugar; when the sugar is melted, add a quantity of sliced "musk pears" and apples; boil and flavour with essence of lemon and spirit of arbutus.

To make syrup; dissolve 15 parts of "hydo-alcoholic extract of the fruit" in 125 parts of "alcoholature of the flowers of the " arbutus," filter and add 5000 parts of "boiling syrup of " sugar." When cool add 60 parts of the "alcoholature" and 30 parts of spirit of arbutus. This may be used for ices, etc.

"The juice of the fruit when mixed with cold water yields a " gelatinous matter, which is precipitated by alcohol" into a jelly called "parapectine." This is used "to obtain jelly as well from " the arbutus as from any other fruit."

These processes are improvements upon No. 962, A.D. 1861.

[Printed, 4*d*. No Drawings.]

A.D. 1865, July 10.—N° 1819.

SCHOOLING, HENRY. — (*Provisional protection only.*) — " Pearled or ornamented confectionery."

The inventor proposes "to make a new article by coating gum, " sugar, fruit, almonds, or any other material or combination of " the same, or any substitute for gum and saccharine matter by "the process known as 'pearling,' then colouring, embellishing, "or ornamenting the same by the process known as 'splashing,' "or by any other convenient process."

[Printed, 4*d.* No Drawings.]

A.D. 1865, July 22.—N° 1917.

WAPSHARE, WILLIAM. — (*Provisional protection only.*) — "Apparatus for cooking."

The invention "consists of an apparatus for cooking; the exterior "is made of iron, or partly of iron and partly of brick. The fire-"place is fitted with lumps of iron to contract the fire-place and "convey the heat to the different ovens, which may be in any "number from one to six according to the size of the apparatus. "The cooking in the ovens is done by a rotary motion by a spring "or veravolver attached to the back of the apparatus and con-"nected by chains or cords, and wheels and spindles to an iron "frame inside the oven, working freely on a centre, to which the "joints of meat or other article to be cooked are suspended. If "convenient a smoke-jack will answer the same purpose of a vera-"volver or spring; or these apparatuses may be dispensed with, "and the joints or articles to be cooked may be turned by hand. "The iron frame is fitted with a dripping-pan and shifting "shelves for pantry, bread, or other dishes. The apparatus may "be so constructed that some of the covers are placed at the top "and some at the bottom. The top plate of the apparatus is pro-"vided with openings for several saucepans or cooking utensils. "That portion of the said top plate which is over the fire may be "removed."

[Printed, 8*d.* Drawing.]

A.D. 1865, July 26.—N° 1944.

BARTON, WILLIAM.—"Cooking stoves and ranges."

The fire-place is of trianuglar section, widest in front. The lower front bars and the bottom of the grate are fixed to one another and can be raised by a rack, so as to lessen the size of the grate. The flues lead to the top of the boiler on one side, and by a tube or tubes passing down the middle of the boiler the products of combustion are carried down to a space below the boiler whence they pass by flues at the back and sides to the chimney. A similar arrangement may be employed in the oven on the other side of the fire.

[Printed, 10*d.* Drawing.]

A.D. 1865, August 4.—N° 2019.

ROBERTSON, Patrick.—(*Provisional protection only.*)—Brewing, etc. and drying yeast.

The greater part of this Specification relates to brewing and distilling, but there is also a part referring to the drying of yeast. For this purpose the yeast is placed on perforated trays in a chamber from which the air "is continually exhausted." A moderate heat may be applied during the process. The moisture is condensed on the sides of the chamber by applying water on the outside, or calcined sulphate of lime may be placed in the chamber to absorb the moisture.

[Printed, 4*d.* No Drawings.]

A.D. 1865, August 19.—N° 2143. (* *)

WOOD, William, and WOOD, James William.—(*Provisional protection only.*)—" Improvements in the manufacture of " pomfret cakes, rolls, and pipes, and of lozenges, and in apparatus to be used in the manufacture of such articles."

First, a thin layer of liquid or pasty liquorice mixture or other material is laid on to a prepared surface and dried, then another film is laid on the first and dried, and so on until the desired thickness of cake is obtained, when it is removed and can be made into the above articles.

Second, pomfret cakes and lozenges are formed direct from the liquid or pasty materials by means of repeated thin layers as above on dies of the desired form, pattern, and size.

Third, sheets, rolls, or pipes are formed by dipping suitably prepared sheets, plates, cores, or rods of metal, glass, &c., in the above-liquorice mixture, and drying and dipping until the desired thickness is obtained; "the sheets, rolls, or pipes may then be formed " into cakes or lozenges."

Fourth, sheets, cakes, and lozenges are formed as above by alternate layers of liquorice material and powdered dry sugar, etc.

Fifth, a cylinder or endless sheet of copper, etc. is slowly rotated in an enclosed space, in contact with feed rollers or a short endless sheet revolving in a trough or cistern; it thus acquires a film of liquorice material, which is dried by a current of air or otherwise, and this is repeated until the desired thickness is obtained, when the sheet is removed and used.

Sixth, dies are attached to a cylinder, etc., and proceeded with as above, and endless chains or discs, etc., to which are suspended sheets, plates, etc., are dipped into liquorice material, and proceeded with as above.

The dies, cores, rods, etc. are coated with oil, etc. to prevent adhesion.

Seventh, the rolls, pipes, cakes, etc. are divided transversely into the required thickness by means of circular or other saws or cutters.

[Printed, 4*d.* No Drawings.]

A.D. 1865, August 24.—N° 2176.

THOMAS, FREDERICK.—(*Provisional protection only.*)—Cooking stoves.

The invention consists in forming a hollow space round and beneath the ovens and boilers, which space also extends beside or under the fire-place or flues. This space may or may not be connected with the flues. If the bottom of the grate is moveable, it is made so that the entrance of air into any of the flues, otherwise than through the fire, is prevented.

[Printed, 4*d.* No Drawings.]

A.D. 1865, August 30.—N° 2228.

FALLOWS, JAMES.—(*Provisional protection only.*)—Handles for various articles.

The "improvements consist in making the handles of spoons, "ladles, forks, saucepans, and other utensils of two distinct "pieces of sheet iron or tin plate which are united by pressing, "and afterwards dipped into or passed through a bath of melted "tin or alloy in order to cement the whole firmly together, and "give the external surface thereof a bright or polished appear-"ance."

The blanks are cut out "from comparatively thin sheet iron "or tin plate; these blanks are then compressed between

" suitable dies so as to give them any curved or ornamented " form desired, the edges of the wider or upper side blank (except " just at the bowl end) being at the same time turned inwards. " The two blanks are then adjusted together in the required " position, and the edges of the upper blank are pressed closely " down over the edges of the lower blank, thereby uniting and " securing them tightly and permanently together, leaving a " hollow space between."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 31.—N° 2237.

JUDGE, Michael.—(*Provisional protection only.*)—" Manu- " facture of boiler and tea-kettle bottoms, and every other " description of die-struck hollow ware."

No description is given, but an apparatus for die-sinking is figured. The claims are for a " collar die" " for bearing on " the flange, thereby preventing the possibility of crimping or " buckling;" for a bottomless die " as a duplicate, as the said " die has a second size on the obverse side;" a " treadle arrange- " ment" " for lifting the collar and the formed work."

[Printed, 6*d*. Drawing.]

A.D. 1865, August 31.—N° 2249.

WARD, John.—(*Provisional protection only.*)—" Covers for " saucepans and other cooking utensils."

The invention " is intended for the purpose of allowing the " steam as it accumulates inside the saucepan or other cooking " utensil to escape therefrom without removing the lid or cover " itself, whereby the ebullition is not checked, and the accidental " admission of smoke, soot, or other impurities into the pan or " vessel is prevented." This part of the invention consists, " firstly, in making a small aperture in the lid or cover, and fur- " nishing the same with a valve covering the same and opening " only outwards, so that as the steam accumulates in the pan or " vessel, the pressure thereof opens the valve and allows of its " escape without removing the lid or cover from the vessel, the " valve closing by its own weight as soon as the pressure of the " steam diminishes."

A modification of the invention " for the same purpose, which " is not self-acting, but allows of easy adjustment by hand, con-

" sists in making a central opening in the lid or cover, about one-" fourth the area of the same (more or less). This opening is " circular in form, being furnished with two or more notches or " indentations, and is closed by a second lid or cover of a circular " form, provided with projections which fit into the notches or " indentations above-named; so that when this second lid is " placed over the main lid it entirely closes the opening in the " latter, but upon turning the former partially round, the notches " or indentations are uncovered, and thus the steam is allowed " to escape. The turning of the smaller lid also locks the two " lids together so that they can be removed in one piece as it " were."

Printed, 4*d*. No Drawings.]

A.D. 1865, September 7.—N° 2301.

ASKEW, John.—" Apparatus for stoning raisins."

" A pair of rollers is used, one roller is of comparatively large and " the other roller of comparatively small diameter. These rollers " are geared together, and are caused to move with a like surface " speed. The necks or axes of the rollers turn in suitable " bearings, the axes of the upper roller being pressed towards the " lower roller, so as to keep the surfaces of the two rollers " constantly in contact. The surface of the smaller roller is " slightly grooved with longitudinal grooves, the large roller is " smooth. The rollers are by preference of steel or iron. Motion " is communicated to the axis of the larger roller by a cog-" wheel, and the shaft on which the cog-wheel is fixed is driven " by hand, or by any suitable power. In front of the pair of " rollers is a grating, the wires or bars of which are at a " distance apart to admit the stones of the raisins falling " through, whilst the grating will support the raisins as they are " pressed towards the nip of the rollers. Each of the rollers is " provided with a doctor or scraper at the back. By the action " of this combined arrangement the flesh of the raisins will be " crushed and pass through between the rollers, but the stones " will be retained, and will fall back away from the rollers and " through the grating above mentioned. The raisins are placed " on the grating, and are pressed forward thereon towards the " nip of the rollers by a blade or instrument, which is moved " to-and-fro by hand or otherwise on the grating."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1865, September 27.—N° 2477. (* *)

MORGANS, William.—"Improvements in coke and charcoal "ovens and in the manufacture of coke, parts of which are applicable to bread, biscuit, and pastry ovens."

A number of ways are shewn in which coke ovens are made with moveable bottoms for removing or altering the position of the charge. The bottom may be hinged and "brought up to its "coking position by balance weights" and then held by a catch, A number of such ovens may be either set back to back or radially, the latter of which may be built in one casing, and the whole made to turn horizontally. The motion of the bottom may be regulated by gearing, and a portable apparatus for the purpose may be used for several ovens. The bottom may also be mounted on wheels or skids, and either run out with the charge on rails or be tilted over. False sides and ends may be used for charging the bottoms outside. Another plan consists in making the bottom moveable vertically and adjustable by a steam or hydraulic cylinder. It may also be hinged in order to tip it after lowering; or the bottom itself may be so shaped as to slope towards its circumference, so that the charge will clear itself. This oven can be built in separate compartments to divide the charge.

Similar ovens may be used for carbonizing wood. A flue passes spirally round the oven. According to another plan, the moveable bottom is mounted on wheels. The fire-place is moveable with it, and the hot gases pass either direct into flues communicating with the chimney, or through flues in the bottom in order to surround the oven. Amongst other forms, the moveable bottoms may be made in several pieces separately suspended; flues may be formed in them to be used in cooling down the oven, and one bottom may be used for several ovens, or ovens divided by partitions.

Several methods of tilting the charge out of ovens are also shewn. An oven is suspended upon bearings, on one of which is a pinion worked by a rack; or the oven is set upon wheels placed on each side on an inclined surface, and it is tilted by making the wheels run up one side and down on the other. Or an oven is so suspended on pivots on each side that it can be turned upside down in order to be discharged by means of a crane placed in the centre of a series. A separate fire-place can be used, the heat from which can surround or partly surround the oven. The pivots may also be made hollow in order to carry away the products of combustion. By carrying an oven on trunnions it can also be turned, or partly turned, during the coking process, as well as entirely discharged by the same means; or the oven may be carried on rollers so as to allow of a circular motion on its axis during the coking process; and if mounted on trunnions it can also be tilted in order to be discharged.

"Bread, biscuit, and pastry ovens" are similarly built, so that they can be tilted; or with moveable bottoms hinged or fixed on wheels; or to rise and fall; or are set upon wheels. Such ovens can be heated with coal or gas, or superheated steam. The moveable bottoms are sometimes made in several parts. "A liquid "joint" can be applied to such moveable bottoms, as also to the ash-pit underneath. The steam evolved can, if desired, be conveyed into the oven; "the liquid joint may also be applied to "ovens having movable tops."

[Printed, 2*s*. 4*d*. Drawings.]

A.D. 1865, September 29.—N° 2508.

GILLETT, George.—(*Provisional protection only.*)—"Impress-"ing designs upon biscuits made by machinery."

Designs of various characters are stamped by means of dies on the biscuits.

"The die is constructed as follows:—The design to be im-"pressed upon the biscuit is cut or indented on the surface of "the die or block in such manner as to leave the outlines, "borders, or edges of the pattern raised from the pattern die "itself, so that when the die is pressed upon the biscuit, the "raised metallic edges form an indentation or mere outline on "the biscuit, but the hollowed or intended surfaces of the metal "do not touch the surface of the biscuit, thus leaving the design "itself on the same level as the biscuit when first rolled, the "pattern being denoted by the indented outlines formed by the "raised or cutting edges on the pattern block." A "releasing "plate or plates" is used "to release the biscuit from the block, "which is easily effected as there is no contact between the "indented surfaces of the block and the surface of the biscuits to "cause adhesion; the releasing plate" "is either in the form "of an annular ring or in segmental divisions of sufficient area "to effect the liberation of the biscuits." "Dockers" are used to "prevent blistering, in such form and number as may be requisite

" according to the design of the biscuit as well as the size and
" quality.

" The cutter or cutters are fixed to a block which is made to rise " and fall by a crank or cam motion, and the dough being rolled " until the requisite surface is obtained is then fed over an elastic " or yielding table by means of an endless canvas or flannel " band and rollers, so as to bring the dough under the cutters. " The elastic table may be formed of india-rubber, or it may be " set on yielding springs; as the dough is brought under the " cutter, the block descends, and on rising again the releasing " plates liberate the biscuits and dough which are separated by " hand, leaving the biscuits to pass on to the tins for baking."

[Printed, 4*d*. No Drawings.]

A.D. 1865, September 30.—N° 2515. (* *)

JOHNSON, JOHN HENRY.—(*A communication from François René Menand and Charles Louis Marie Menand.*)—" Apparatus for " lighting and heating."

This invention comprises a night light, a contrivance for warming food, etc. The base of the apparatus is provided with a place for an oil or spirit lamp, an upright, and two brackets. The vessel which holds the oil or spirit has " four " branching air pipes;" their inner ends open into the vessel " by vertical oblong apertures," and their outer ends " reach a " little above the lip of the vessel." Two horizontal arms, fixed at any elevation by set screws, slide on the upright; the lower one carries in a ring a glass chimney, the upper one a vessel for holding food, &c. There may be a third arm projecting from the opposite side of the upright.

In lieu of the adjustable arms " separate vertical telescopic " uprights " may be used. The oil vessel may be made " with an " inner descending lip " and be perforated all round the top edge; or it may have an outer or an inner lip, the outer descending not quite so low as the inner one, " so as to form a " species of annular syphon all round the edge."

[Printed, 8*d*. Drawing.]

A.D. 1865, October 3.—N° 2534.

TINKER, CHARLES JAMES.—Manufacture of lozenges, cakes, etc.

The first part of the invention relates to means for turning over the sheets of paste, so that they may be polished on both sides. Two plates or jaws are hinged on a bar. "On this "bar is a stem in the middle projecting at right angles, and "forming an axis capable of being fitted into a bush or boss "formed in another bar, which is supported at each end and "capable of turning on its axis in a frame capable of being "moved up and down by rack and pinions," or otherwise, "this bar being held in position by a spring lever and stud pin." Fitted to the stem is a lever, or segmental rack by which the "turn over of the plate" may be effected. The plates have a lateral reciprocating motion from the travelling table or otherwise. The under plate is lowered with its edge on the table; by the movement of the table and the reciprocating motion of the plate, it is worked under the paste. When a sufficient quantity of the paste is on the plate, it is cut off, the upper plate brought down, and secured by a catch, and the whole turned over.

The second part relates to stamping and cutting lozenges. The paste is delivered on to a travelling table, grooved longitudinally, or having guides in a frame above it. Intermittent motion is given to the table. Above the table is a knife, fixed to a bar which slides vertically in guides. The knife is driven down by cams and up by springs. A slight lateral motion is given the knife to clean it, and on each side of it are scrapers and rubbers. "An "upright spindle turns and slides in bearings at the sides. "On the spindle is an arm fitted with a series of pins or grippers, "arranged so that each carrier will seize a nip" or portion cut off. By a cam the spindle is caused to slide upwards and revolve so as to deliver the cut portions "to an upright board, against which "they are placed for stamping." A series of stamps is mounted on a bar which slides laterally. It is operated by a cam for stamping, and a spring for withdrawing the stamps. To loosen the bar, a slight rocking motion is given to it by a cam. The board has an intermittent up-and-down motion. Below the stamps is a roller which presses against the board to keep the surface level. If an endless cloth is used instead of a travelling table, the board on which the lozenges are stamped may be "at "the end parallel to the knife," and the carrying mechanism is modified accordingly.

To remove the lozenges from the stamps, a jet of compressed air or superheated steam is used. It acts either through a hole in the shank, upon the centre of the lozenge or through a "cover

" or chamber on the shank," surrounding the stamp head, or the edge of the lozenge.

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1865, October 17.—N° 2677.

HASSALL, ARTHUR HILL.—(*Provisional protection only.*)— " Preparation of meat for food."

" This invention has for its object improvements in the preparation of meat for food, and consists in drying fresh meat or flesh " at a temperature below the coagulating point of the albumen " in the meat, and afterwards grinding and sifting the dried " product to obtain it in the state of a fine powder, when it is in " a condition fit for use. In some cases it is preferred to mix with " the powder so obtained a portion of powder obtained in a " similar manner from meat dried at a higher temperature to that " above mentioned. By preparing the meat or flesh in this " way, animal soups (particularly beef tea) may not only quickly " be prepared therefrom, but all the parts of the meat will, in " addition, be obtained in the soup in place of the fibrous portion " of the meat being separated from the soup as is commonly the " case."

[Printed, 4*d.* No Drawings.]

A.D. 1865, October 21.—N° 2730. (* *)

DUFRENÉ, HECTOR AUGUSTE.—(*A communication from Joseph Jules Derriey.*)—(*Provisional protection only.*)—" Improvements " in machinery for the manufacture of lozenges, wafers, or pastilles of pasty materials."

The machine, which is mounted on an iron frame, consists of a marble slab for supporting the paste, " three series of cylin" ders," two endless cloths, stamps, or punches, and a cutting cylinder, and the machinery requisite for action. It is worked by hand by means of a crank, or by any other motive power. The crank transmits motion to two gearing wheels, " one of " which in turning gives by means of an excentric a to-and-fro " movement to the stamp carrier, and communicates to the other " placed underneath an alternate rotative movement, which " when the pastilles are cut and enclosed in the cutting " cylinder causes, the latter to make half a turn, so that the " pastilles may fall on the plank underneath." The driving

shaft carries a fly wheel, and "gives motion to a wheel carry-
"ing an excentric pin attached to a connecting rod, which
"changes the rotative movement to a to-and-fro movement, and
"causes a click to catch on a ratchet wheel which turns the
"cylinders, one of which turns the other." Behind the "lami-
"nating cylinders" is an endless cloth for conducting the rolled paste in front of the machine. In front of the cutting cylinder is also an endless cloth, which carries with it the cuttings separated from the pastilles.

[Printed, 4*d*. No Drawings.]

A.D. 1865, October 24.—N° 2744.

NASH, Matthew Thomas Cooper, and NASH, Charles John.—(*Provisional protection not allowed.*)—Cooking vegetables.

"This invention has for its object the treatment of certain
"kinds of vegetables in the process of boiling, whereby their
"natural color and flavor are preserved or restored; at the same
"time they are rendered more tender, delicate, and palatable, and
"are cooked in a much shorter time than by the ordinary methods
"of cooking and boiling. The vegetables to which our treatment
"is applicable consist of every description of greens, cabbages,
"cauliflowers, broccoli, sprouts, turnip tops, all kinds of peas and
"beans, celery, asparagus, artichokes, vegetable marrows, and all
"other similar edible vegetables." The means employed in carrying out the invention "consist in introducing about 1 drachm or
"about half an ordinary teaspoonful of carbonate of soda to
"about one gallon of water into the pot or vessel containing the
"vegetables when the water has commenced to boil."

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 2.—N° 2833. (* *)

WEBSTER, James.—"Improvements in generating and apply-
"ing certain gases, and in apparatus to be employed therein."

The invention relates to generating gases by forcing currents of atmospheric air through mineral turpentine, napthaline, or rock oil, or any oil or spirit consisting of a similar base; and to the apparatus used in making and applying such gases.

A cylinder is employed, the lower part of which is charged with the oil or spirit, supplied through a tube from a reservoir above, into which the air is forced by bellows worked by a treadle by which air is driven through a tube into a reservoir or drum. To this drum is connected a series of vertical tubes extending from the under side of the drum to the bottom of the cylinder; these tubes are, by preference, formed alternately of copper and zinc, and have their lower ends immersed in the oil or spirit, the upper ends being fixed in a block of wood or other non-conductor. The air is forced through the tube into the drum and from thence through the vertical tubes into the oil or spirit, and in its passage it absorbs a portion of the oil or spirit, driving it up the outer cylinder into and through a mass of sponge or pumice stone, etc., when it issues as gas from a pipe in the top. When using this apparatus with a blow pipe, a flexible tube is attached to this pipe to which is fixed a two-way nozzle pipe. The gases issuing from the cylinder through the flexible tube are stopped by the stop-cock which regulates the supply to the two tubes above it; these two tubes meet again at a junction whence they are conveyed to the nozzle by two tubes one within the other. The gas being lighted at the nozzle the bellows are worked. "To apply these "gasses and their generator for cooking or other like purposes "any number of these nozzles may be employed."

[Printed, 10*d*. Drawing.]

A.D. 1865, November 18.—N° 2971.

HUNTLY, Samuel Hazard.—"Cooking apparatus."

One part of the invention relates to a portable cooking apparatus, specially adapted for army use. In the lower part of an iron casing are fitted two ovens, spaces being left surrounding them. Between them is the fire-grate, closed at top. In the top part of the grate is a space communicating through a valve with the air, and having below small preforations, so that air can be admitted to the top of the fire through them. Or a hot-plate may be formed above the fire in a recess between the ovens. Above the ovens are boilers which project through the top of the casing. The products of combustion circulate through the spaces between and around the ovens and boilers, and escape by a flue.

The second part relates to "kitcheners." The flues are of iron, and pass "against the sides of the ovens" on each side of the fire "to just below the fire-grate," thence underneath the boiler behind, and up its back to the chimney. The boiler is brought forward into the grate. There may or may not be a flue running directly from the fire under and behind the boiler. The dampers are placed in the flues at the side of the ovens, so that the heat of each oven may be regulated. The upper part of the oven next the fire is protected by a fire-brick lining, an air-space, a projecting cheek from the boiler, or a separate water space. In front and above the grate is a hopper for fuel, the cover of which forms part of the hot-plate.

In a modification, two other ovens may be placed above the usual ovens, a space between being left to form a flue. For this case the fire-place is preferably made to project forward, and projecting portions of the boiler form its sides. The top of this extended fire-place forms the hot-plate.

[Printed, 1*s*. Drawing.]

A.D. 1865, November 18.—N° 2973.

WALKER, JOHN CRAWFORD.—"Manufacture of bread."

"Dry excessively acid phosphate of lime" is mixed with "some "vegetable material, such as flour or starch," and the whole pulverised. Dry carbonate of soda is then added in sufficient quantity to neutralise the phosphoric acid. This is to be mixed with flour for making bread, pastry, biscuit, etc. For preparing the superphosphate of lime, bones are calcined, and the ash treated with dilute sulphuric acid. This solution is strained and evaporated. The action of the process is explained at some length.

[Printed, 4*d*. No Drawings.]

A.D. 1865, December, 6.—N° 3144.

RUSSELL, GEORGE FITZJAMES.—"Kitchen stoves and cooking "ranges."

The invention "consists in forming the various parts that they "will fit or register together without the necessity of employing "any screws or other fastenings." There is "an open casing of "sheet iron to enclose the various parts of the store, such casing "being intended to be set in brickwork; at the base of the "casing" is "a cast-iron plate having suitable projections or "guides for the purpose of receiving the fire-grate, ash-pit, oven, "boiler, and other parts of the range, the sides and back of the "casing being likewise provided with similar bars or guides." The various parts are cast "in the requisite forms for fitting into

" the casing, wherein they are placed successively, and when so " adjusted they resemble the ordinary appearance of a closed " range, the hot plate being made to slide in grooves on the " top of the side plates, and over the fire, oven, and boiler; " the various parts of the stove are also secured in position by " fitting together and by clutches in one piece entering corre- " sponding slots in another when adjusted together." In the hot-plate is "an extra slide for the purpose of using an open fire " when required. The heat is caused to travel under and over " and along the sides of the oven and boiler." The "front of " the fire may be closed by a plate hinged to the lower part of " the grate in order to close the fire-bars, but when it is desired " to roast, the plate is let down." Or instead of a plate there is " a series of narrow slips of cast iron, each of the width from " centre to centre of the bars, and each hinged or pivotted to the " side of the fire-grate; then by means of a vertical rod on each " side of the fire-bars and in connection with the slips they may " be opened and closed after the system of ventilators formed " of slips of glass or other material; their edges should be re- " bated." "When they are opened and lie out horizontally " from the bars the process of roasting may be carried out."

[Printed, 8*d*. Drawing.]

A.D. 1865, December 8.—N° 3159.

BOULTON, WILLIAM, and WORTHINGTON, JOSEPH.—(*Provisional protection only.*)—Making bowls, etc.

Among the articles to be manufactured are "mortars, bowls, " spill pots, jelly cans," etc. They are made out of "pulverized " clay or dust." In the process the following implements are used:—

A "metal ring or shell" of the proper "thickness and shape of " the articles" deep enough to allow the moulds to slide in it, and secured to the bottom of the press.

A plunger of the shape of the inside of the article.

A "partially hollow spindle" secured to the plunger, to which is attached a lever and weight so that the plunger may be adjusted to the proper height to give a suitable thickness of clay.

An "outer mould open at the top to receive pulverized clay or " dust." The inside is of the shape of the outside of the article."

A "top ram or die made in any convenient shape." This is actuated by a screw or otherwise so as to apply the requisite pressure.

A second lever on the spindle "to extricate the plunger from "the clay." To assist this there is a small air-valve in the plunger.

[Printed, 4d. No Drawings.]

A.D. 1865, December 8.—N° 3162.

BOUSFIELD, George Tomlinson.—(*A communication from Francis Milliken.*)—" Apparatus for cooking by steam."

A cooking vessel has its bottom formed of a coil of pipe through which steam passes. The pipe may also be applied to the vessel in any other way. Ovens, saucepans, etc., may be thus fitted, and a vessel may be made having steam-pipes in its covers as well as its bottom. A hollow spit is also supplied with steam, which passes through a small hole in its point, or it may be double, to allow the steam to pass up and down it. This spit may be used for roasting, separately or in conjunction with the above apparatus. It heats the inside of the matter to be cooked.

[Printed, 1s. Drawings.]

A.D. 1865, December 15.—N° 3247.

WARRINER, George.—" Fire-places and furnaces."

Air may be admitted to the interior of fire-places or furnaces through tubes, and gas, or inflammable vapours may be admitted in the same way. This improvement does not appear to be specially applicable to cooking stoves. Tubes may pass through the fire and convey air to the interior of an oven. The outer air of these tubes are open to the external air. The tubes may be variously arranged in the fire-place, and they may be filled with pieces of iron, etc. to heat the air further. The ash-pit of a cooking range or other fire-place may be of conical shape with the small end downward, and this small end may be immersed in water so as to make the space below the fire-place air-tight.

[Printed, 10d. No Drawings.]

A.D. 1865, December 15.—N° 3251.

LITCHFIELD, Henry Charles.—(*Provisional protection only.*) —" Machinery for cutting bread."

The inventor says :—

"I propose to form a bed plate or foundation of wood or other "material, the surface of which is grooved or fluted in parallel "lines, or flutes or grooves are to be formed by adjustable bars "and set screws so as to regulate the distance or spaces between "the grooves. On each side of the foundation I attach by hinges "a frame or knife-blade carrier, the frame being extended to "form a handle or lever; the blades are fixed by means of slotted "guides in the frame and by pressing bars screwed thereon. "The slots are made at any near intervals, and the knives are "placed in such respective slots or guides as may be necessary to "cut the desired thickness of bread, as also the grooves in the "foundation are to be adjusted to permit the passage of the "blades beyond the crust of the loaf and below the level of the "foundation plate in order to ensure a complete severance or "division of the bread. The above example is one wherein the "cutting action is by pressure alone, but in order to effect a "sliding or sawing action of the cutters, I propose to attach "parallel motion bars at the four corners of the cutter, their "upper extremities been joined by pins or hinges to the cutter "frame, the lower ends being connected to the foundation; "by this arrangement when the handle is drawn down the blades "descend with a sliding motion so as to effect a sawing or "forward action in addition to the downward motion, whereby "the bread is cut smoothly, somewhat in the same way as is "done by hand with an ordinary bread knife."

[Printed, *4d.* No Drawings.]

A.D. 1865, December 18.—N° 3269.

BROOMAN, Richard Archibald.—(*A communication from Julien Belleville.*)—"Boilers or apparatus for generating steam."

Boilers are described suitable for various purposes; among others they may be "employed in all works and manufactures in "which steam is employed for heating, drying, baking, or other "purposes." The details vary according to the description of boiler required. Descriptions of boilers for marine and stationary engines are given, but no account of the method of applying the invention to baking, etc. is provided. The boiler consists generally of a series of tubes arranged at the back part of the furnace within a chamber, so that the products of combustion may act upon them. The steam is superheated in the upper part of the apparatus and then conveyed to a steam chamber.

[Printed, 3*s.* 8*d.* Drawings.]

A.D. 1865, December 22.—Nº 3317. (* *)

DAVIES, George.—(*A communication from James Stratton.*)— "Apparatus for burning combustible vapor (such as that from "naphtha or coal oil) for heating, cooking, and lighting pur- "poses."

"A vapor burner, adapted for heating and culinary pur- "poses," consists of a portion of a straight tube bent near its end "horizontally into a ring, the end being then bent down- "wards." This ring communicates "by means of a short hori- "zontal pipe with a chamber to the top of which is secured "a nipple," directly "below the centre of the ring formed by the "bent portion of the tube above alluded to. In the upper end "of the nipple is an opening, and below the latter is a conical "valve seat, to which is adapted the upper conical end of a screwed "rod which passes through and screws into the bottom of the "chamber. To the lower end of the rod is secured a hand "wheel," and from the upper end of the rod projects a "needle "point." A metallic disc is suspended within the ring by lugs projecting from the disc. The annular portion of the tube is first heated, "and naphtha, coal oil, or other suitable fluid is intro- "duced." "It flows towards the chamber and through the "nipple, where the gas generated by the decomposition of the "material in the heated portion of the tube is ignited, the screwed "rod being withdrawn to permit the escape of the gas in such "quantity as may be desired. As the flame from the burning "vapour impinges against the disc," it is deflected towards the annular portion of the tube, heating it to redness, "so that the "gas is generated continuously and in such quantities as to be "impelled violently against the under side of the disc or plate, "heating the latter, the tubular ring, and the air which surrounds "the same." By removing the disc or plate a vessel containing any substance to be heated may be placed directly on the tube, where it acts instead of the plate to deflect the flame against the tube. "To diminish the flame, the rod is raised so as to partially "obstruct the opening in the nipple;" to extinguish the flame "altogether, a metal cap is placed over the nipple, a pointed rod

" in the interior of the cap projecting into the opening." "After " the burner has become perfectly cool the cap is removed, and " the screwed rod is raised until the conical end of the same is " brought against its seat."

[Printed, 8*d*. Drawing.]

A.D. 1865, December 22.—N° 3319.

BOUSFIELD, George Tomlinson.—(*A communication from Mellen Bray.*)—"Machinery for raising or forming articles of " sheet metal."

The object is to enable an article to be stamped out by one or two motions, instead of by repeated strokes with different sized dies. Apparatus is shown suitable for making "lemon cake " dishes." Mechanism is described by which the effect is produced. A male and female die are set in suitable positions, with " holding dies" surrounding them. The first movement of the machine causes these holding dies to seize the blank, and hold it till the male die is brought against it; the holding dies then slightly relax, so that the metal yields as the dies drive it in. When the article is stamped out, the holding dies again meet to press out wrinkles. The finished article is then withdrawn.

[Printed, 1*s*. 10*d*. Drawings.]

1866.

A.D. 1866, January 12.—N° 106.

CHARON, Pierre Louis.—"Apparatus for cooking potatoes."

"This improved apparatus consists of a vessel with a perforated " bottom somewhat similar to an ordinary potatoe steamer, in " which the potatoes are cooked by steam over a saucepan, but " with some of the perforations made larger than the others, and " fitted with small conical tubes or pipes projecting upwards " about half an inch, more or less. The method of using this " apparatus is to bore a hole through the centre of each potatoe " by means of a taper metallic tube, and to fit this hole on to " one of the small conical tubes above named, so that the steam " passes through the potatoe and cooks it thoroughly in the centre

" as well as outside, and in less time than by the ordinary " steamer. To the larger end of the taper tube used for boring " the potatoes, a dished plate is fixed, having a slot or opening " in the edge, which forms a kind of 'slice' for removing the " potatoe from the small conical tube without breaking it after " it is cooked. The slot or opening in the 'slice' is to allow of " its being pushed under the potatoe, past the conical tube, " before raising up the potatoe from the latter.

[Printed, 8*d*. Drawing.]

A.D. 1866, January 13.—N° 110. (* *)

THOMPSON, John Calvin.—"Means or apparatus em- " ployed in the combustion of gas in gas stoves, and burners " employed in heating and cooking."

In carrying out these improvements a chamber is employed " into the interior of which gas is admitted from a jet or jets, " and becomes mixed therein with atmospheric air. This mixing " chamber consists of an inner and outer tube, forming an " annular chamber, the top of which is covered with a ring of " finely perforated metal or wire gauze, on the upper surface of " which the mixture of gas and atmospheric air is burnt. The " bottom of this annular mixing chamber is closed with a plate " of metal having suitable apertures therein for the purpose of " admitting atmospheric air to the annular chamber to become " mixed with the gas therein. This chamber is placed at the " lower part of a suitably formed case or cylinder of sheet iron or " other suitable material, in which is fixed a conical tube, the " lower and larger end of which fits within, and is fixed to the " outer case or cylinder a short distance above the mixing chamber. To the interior of this conical tube, and at the upper or " smaller end thereof is fixed another conical tube, the lower " and smaller end of which descends a short distance below the " surface of the wire gauze or perforated metal, above which the " mixture of gas and atmospheric air is burnt."

In applying this invention to ordinary gas burners, for warming food or otherwise a mixing chamber is employed "closed at the " lower end by means of finely perforated metal or wire gauze, " in the centre of which is fixed a conical tube, the upper and " smaller end thereof coming just below the top of the chamber, " which is also covered with finely perforated metal or wire gauze. " This mixing chamber is placed over any suitable burner." The mixture of gas and air is burnt on the upper surface of the wire gauze or perforated metal, the centre of which is protected from too great heat by a metal plate.

[Printed, 8*d*. Drawing.]

A.D. 1866, January 20.—N° 189.

GEDGE, WILLIAM EDWARD. — (*A communication from Felix Boutellas Desmoulins.*)—Preparing cocoa so that it may be incorporated with confectionery, etc.

A list of preparations is given with which the "coca" may be used. "Confectionary of all sorts" is amongst them. The description of the process is thus given :—

"The following are various methods of effecting the incorpora-
" tion of either the extract called 'cocaine,' or the coca pulverized
" or not, in the above preparations in variable doses:—Infuse
" the coca during three weeks in alcohol at 85 degrees by
" 'Baumé's' areometer (one part coca and seven parts alcohol),
" or filter in a displacing apparatus, or distil the alcohol and the
" coca in an alembic, and incorporate this extract, either liquid
" or solidified, and in variable doses, with the above-mentioned
" preparations. Infuse or husk ('décorqueter'), the coca in
" water (one part coca and ten parts water), or filter in the dis-
" placing apparatus, or distil the water and the coca in an alembic,
" and incorporate this extract, either liquid or solidified, and in
" variable doses, in the above-mentioned preparations." "For
" the syrup, add to the above watery extract sugar in proportions
" varying from 5 to 8."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 30.—N° 291.

TONGUE, JOHN GARRETT.—(*A communication from Edouard Patan.*) — (*Provisional protection only.*) — "Obtaining motive
" power."

Air "as cold as possible" is compressed by force pumps in a
" closed space" where it is heated. It is then used for working a motive power engine. After this the waste heat may be economised, and "on board ship it can be made to serve" "to cook
" the soup for the crew." No special means of so doing are mentioned.

[Printed, 1*s*. Drawings.]

A.D. 1866, February 9.—N° 398.

LAKE, William Robert.—(*A communication from William Emerson Baker.*)—(*Provisional protection only.*)—Stoning raisins, etc.

The apparatus may be of two forms. A handle is fitted at its end with numerous small wires, a little distance apart. A surface of india-rubber is also provided. The raisin is placed on the rubber, and the handle stamped down on it. The wires pass through the fruit, and carry the stones with them through it. These are rubbed off the ends of the wires, and the fruit removed. Or two rollers may be used, severally provided with wires and a rubber surface. The raisins are fed between them from a hopper, and the stones expelled in the same way as before. Sets of scrapers are provided to clear away the stones and the fruit, which are received in separate receptacles. The rollers are geared together.

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 15.—N° 483.

HASSALL, Arthur Hill.—" Preparation of meat for food."

The lean part of meat is minced in a sausage machine. It is then spread on perforated trays of galvanised iron or other material. These trays are placed in a drying chamber (heated below the congulating point of albumen). The meat is next ground, and again dried. Part may be dried at a low and part at a high temperature, and the two mixed. The meat may require to be ground and sifted and further dried before it is all equally fine. Next the bones are crushed and the gelatine boiled out; *this* is also pulverised and added to the meat. Vegetables are also similarly treated. For beef tea the meat alone is used, for soups the meat and vegetables together are employed. Soup is made by adding water and simmering. "Meat cocoa" and "meat biscuits" may also be made of the ground preparation. The powder may be used for food for invalids.

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 16.—N° 500. (* *)

WOOD, William, and WOOD, James William.—" Manufacture of pomfret or liquorice cakes, rolls, and pipes, and of lozenges and other similar articles of confectionery."

This invention relates, first, to manufacturing the above " articles by " forming them by repeated or accumulated films, " layers, or laminæ of liquid or pasty material on prepared " sufaces, dies, and cores of metal or other suitable material." When practicable, the surfaces are, by preference, made of glass or other vitreous material. The above materials are likewise made by dusting on the thin films of liquorice material " powdered white or coloured sugar or other material, then drying, " and repeating the operations alternately, until the desired " thickness is obtained."

Second, to using in the above manufacture " roasted or baked " grain, flour, or farinaceous matters " " in lieu of preparing the " flour or farinaceous matters by boiling."

Third, to using " a cylinder or endless sheet of copper or other " suitable material, which being slowly rotated in an enclosed " space and in contact with feed rollers or a short endless sheet " revolving in a trough or cistern, a thin film of the liquid or " pasty material is continuously spread on its surface, which " film or layer is continuously dried by a current of air passed " over its surface and through the enclosed space in which it is " moved." Pomfret cakes, lozenges, etc. are made directly from the liquid materials by the use of dies, etc. of the required pattern, attached to a rotating cylinder, fed by a supply roller which revolves in a trough. Endless chains, etc. may carry suspended sheets. plates, dies, rods, or cores, which are dipped in the liquid material as above. The sheets, etc. of materials thus produced are cut, etc., into the articles required. Plain or figured dies may be fixed on the cylinders, and may be manipulated as above. A thin film of oily, fatty, or other substance, or of flour paste dried is laid on the surface of the die, plate, core, etc. previous to the application of the liquorice, to prevent the adhering of the article to the surface.

[Printed, 1*s*. Drawings.]

A.D. 1866, March 20.—N° 829.

DENIS, Julien.—(*Provisional protection only.*)—Gridiron.

The gridiron " is made of sheet iron, block tin, cast iron, or any " suitable metal, and can be galvanized or enamelled; the bars " can be made on two different plans, having the same object, " one sloping downward from the center and the other horizontal. " The parts which form the bars are to a certain extent over-

" lapped in a downward direction from the center cross piece to
" the said bars, which form the gutters on each side or round
" the gridiron, according to the form or shape; the bars forming
" a surface impassable, in a line transverseley to the general plan
" of the bars whatever form this gridiron possesses. The bars
" may be made single or in a set of one piece, which forms the
" surface of the gridiron; the handle is formed by the continuation
" of the cross piece, which forms the ridge or center between
" the two inclinations. Double rows of curved bars forming a
" horizontal surface, the bars being fixed reverseley to the cross
" pieces at a suitable elevation, to allow sufficient heat, the under
" bars forming the gutters which receive the fat and the gravy to
" carry it to the receiver.

" The feet are formed by the continuation of the cross bars; a
" receiver is placed beneath the handle, having for its object the
" saving of all the fat and gravy, and being free from smoke or
" smell in cooking the meat or fish, producing fine brown colour
" free from burnt or smoky taste."

[Printed, 4*d*. No Drawings.]

A.D. 1866, March 20.—N° 830.

WARREN, Frederic Pelham.—Frying-pans.

The invention consists in forming the bottoms of frying-pans or other utensils with corrugations, or otherwise, in such manner as to form therein grooves communicating with each other. Frying-pans having bottoms formed as described may either be made to be used in the manner of an ordinary frying-pan or may consist of two pans hinged to each other, or capable of being otherwise attached, so that the food to be cooked may be placed between, and the double pan turned over upon the fire, so as to cook its contents on either side as required. In addition to presenting a larger amount of surface to the action of the fire, pans constructed with corrugations will "by the action of any grease or fluid " entering the grooves or channels tend to prevent the adhesion" of the food to the pan. Pans constructed with corrugated bottoms may also be used for cooking with water, and for other purposes.

[Printed, 8*d*. Drawing.]

A.D. 1866, March 27.—N° 894.

WARREN, Frederic Pelham.—" Cooking apparatus."

The grate is "readily withdrawable;" over it are projections from a boiler or boilers situated at the back. Between these projections are flues. Above the projection and in front of the boilers are ovens, between and around which the flues are continued. Above the oven is a hot-plate, on which may be placed vessels obtaining steam from the boiler for various cooking purposes.

Also, an open fire-place may be used. Above it is a "horse-shoe or "bridge-pond boiler," consisting of two water-spaces with an interval between them of the width of the grate, with a connecting water-space above. At the bottom of this arch is a moveable plate, so that the products of combustion may be either allowed to pass into the central space or shut off from it, and compelled to pass through tubes in the water-spaces. When the plate is closed, it may be used as a hot-plate. The top of the side ovens, etc. also form a hot-plate. Steam may be supplied from the horse-shoe boiler to cooking vessels placed on the hot-plate.

[Printed, 8*d*. Drawings.]

A.D. 1866, March 29.—N° 909. (* *)

MYERS, Morris.—(*Provisional protection only.*)—"Apparatus " for sifting sugar, or flour, or other meals, or separating the " smaller from the grosser particles in sauces and condiments."

This consists, "of an upright spindle made to revolve in a " supporting socket," which "is fitted with arms to press " against the sides of the vessel in which the operation of " sifting or separating is to be carried on, in order to strengthen " and support the apparatus. On the bottom of the spindle are " three or more arms, each of which carries a metal scraper which " presses against the sieve or sifter below and urges the material " " through it." "Pressing against each scraper is a small spring, " which allows of the scraper passing over any lump or accumu- " lation of material should the sieve become choked." "The " sieve may be of wire cloth, or hair cloth, canvass, or other " suitable or usual material." In some cases brushes are used " which answer the same purpose as the metal scrapers where the " material composing the sieve is soft or more easily worn."

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 2.—N° 935. (* *)

DERRIEY, Joseph Jules.—"Improvements in machinery for "the manufacture of lozenges, wafers, or pastilles of pastry "materials."

The part of this machine for rolling the paste and that for cutting and stamping it, may form two distinct machines, but it is preferred to combine them. Two frames are joined by tie pieces; at the back is a slab with ledges on which the paste is placed. In front of the slab are "three series of two cylinders;" the last pair "are put at different distances apart, so as to pro-"duce successive and gradual laminatings." During the rolling starch powder is spread over both surfaces of the paste by means of hoppers; the quantity is regulated by a circular brush which moves in an opposite direction. The paste travels from the last pair of rollers on an endless cloth to stamps or punches and a cutting cylinder. At each vertical movement of the stamp carrier the cutting cylinder turns half over by an arrangement of cog wheels. The wafers, etc. fall on to a plank which is moved along by straps. The cuttings are carried forward by another endless cloth outside the machine. Motion is given to the shaft of the fly wheel by a crank arm or other mechanism. The advance of the paste is effected by the intermittent movement of the last pair of cylinders, which is caused by a pawl acted on by a lever and a connecting rod, which takes its motion from a large wheel and an excentric pin.

[Printed, 10*d*. Drawing.]

A.D. 1866, April 7.—N° 1003.

DAVIES, GEORGE.—(*A communication from David Greene Haskins.*)—"Heating houses and apartments."

For cooking, ovens are arranged side by side over a stand to which gas burners are affixed. Between the ovens are spaces with either vertical or inclined sides. Through these spaces the products of combustion pass to a pipe above. In the spaces wire netting may be placed if preferred. The ovens may be placed within a chamber in connection with the chimney, in which is wire netting, and there may be openings through which the hot air may pass out and heat the room.

[Printed, 8*d*. Drawing.]

A.D. 1866, May 1.—N° 1231.

CHASE, OLIVER RICE.—(*A communication from Lewson Everard Chase.*)—(*Provisional protection only.*)—Confectionery.

The object is to provide "a lozenge or 'confectioner's pipe,' "which while it retained all the flavor and nutritive qualities of "the ordinary or 'hard' lozenge shall be more readily soluble, "and at the same time maintain its normal or soluble character "when exposed to the action of heat or atmospheric influence; "second, to prevent that dryness and induration of other kinds "of confectionery which result from the evaporation of the more "volatile parts thereof.

"The invention has reference not only to what is termed 'dry' "confectionery, such as lozenges and confectioner's pipe, but is "equally applicable to most if not all kinds of what is known in "commerce as 'boiled' confectionery, such as 'sweet' chocolate, "gum drops, and confectioner's paste. To make the 'creamellow' "or 'soft' lozenge or 'pipe' the ingredients usually employed in "making the ordinary 'hard' lozenge or 'pipe' are combined with "glycerine, say, in the following proportions, viz., to one hundred pounds of the gum and sugar properly prepared and combined with the essential oil used to flavor the same, add five "pounds (avoirdupois) of pure glycerine: after thoroughly incorporating the whole together, the manufacture is proceeded "with in the usual manner. The amount or proportion of the "glycerine to be used will vary according to the consistency "which it is desired the lozenge or article should have."

"In manufacturing what is termed 'boiled' confectionery, "such as 'sweet' chocolate, 'gum goods,' confectioner's paste, "and various other articles of like nature, to one hundred pounds "of the ingredients ordinarily used in making the same about "two pounds (avoirdupois) of glycerine are added and thoroughly "mixed; the whole is then manipulated in the usual manner."

[Printed, 4*d*. No Drawings.]

A.D.1866, May 8.—N° 1306.

WRIGHT, BENJAMIN.—"Kitchen ranges."

The inventor says:—

"I make the centre plate which covers the top of the grate "capable of sliding into and out of the space between the fixed "tops of the ovens on either side of the fire-grate, the said fixed "tops of the ovens having projecting edges or ledges upon "which the central plate slides. Instead of the ordinary door "above the top bar of the grate I use a drop-down plate or broad

" bar, the said broad bars turning upon centres in the frame of " the grate, and capable of being placed either vertically or " horizontally. Around the chimney hole or flue of the range I " fix a rectangular frame, within which another and moveable " frame is fitted. The lower end of this moveable frame " rests upon the fixed tops of the ovens, and is capable of " being drawn forward out of the fixed frame for the purpose of " increasing the draught of the chimney, or the said moveable " frame may be wholly removed from the fixed one for gaining " access to the chimney. The moveable frame described carries " a vertical sliding plate, which can be drawn down to the bottom " of the fixed frame so as to close the opening to the chimney or " flue, or be raised to the top of the said fixed frame so as to open " the chimney or flue. The said sliding plate is fixed in its raised " position by means of a spring at its back engaging with a rack " or holes made in a plate affixed to the upper part of the afore- " said moveable frame. When the cooking or kitchen range is " in use for cooking purposes, the drop-down plate or broad bar " at the upper part of the grate is raised vertically so as to close " the upper part of the grate, and the sliding central plate is " introduced into the space between the fixed tops of the ovens in " order to close the top of the grate. The sliding vertical plate " in front of the chimney hole or flue is also depressed so as to " close the chimney hole or flue. A closed grate is thus pro- " duced. The closed grate is converted into an open grate in " the following manner. The vertical sliding plate at the " chimney hole is raised to the top of its frame, and fixed " by the spring and rack described, and the moveable frame " carrying the said vertical sliding plate is pulled forward from " out the fixed frame, if required, so as to constitute sides to the " top of the open grate near the chimney or flue, and thereby " increase the draught of the chimney. The central plate above " the grate having been removed by sliding it outwards, and the " hinged bar turned down horizontally, the grate is converted " into an open grate."

[Printed, 8*d*. Drawings.]

A.D. 1866, May 25.—N° 1467.

BEVAN, EDWARD, and FLEMING, ABEL.—Warming food.

The apparatus is intended for the purpose of warming or keeping warm food for invalids and infants. It "is made of metal,

" earthenware, glass, or other suitable material, of a cylindrical " or other convenient shape. In its simplest and least expensive " construction one vessel is placed within another, the inner or " smaller one being the food container, and the space between " the two the hot water or other hot liquid chamber. A tight-" fitting cover or lid is attached so that no steam or heat can " escape directly into the surrounding atmosphere. In this " construction the hot water or liquid chamber, the water or " liquid being distributed in about an equal thickness all over " the outer surface of the sides and bottom of the food container, " should be about three times the size or capacity of the food " container, and the quantity of hot water employed should not " be less than three half pints if it be desired that food should be " kept warm for several, say six, hours. The apparatus in its " most complete form constructed with a view to prevent loss of " heat by radiation is enclosed in another vessel, so as to leave a " jacket of air surrounding the said apparatus; the cover or lid " should also be fitted so as to contain a jacket of air. A cover-" ing of hair-felt, feathers, or other so-called heat non-con-" ducting substance could be fitted to or placed on the apparatus " first described, and the air jacket space could be filled or " partially filled with charcoal, brickdust, or other substance, but " we have found that these agents are not so efficacious as the " air jacket for preventing loss of heat by radiation."

[Printed, 6*d*. Drawing.]

A.D. 1866, May 26.—N° 1472.

BONNEVILLE, Henri Adrien. — (*A communication from Charles Nicolas Athanase Lesobre.*)—" Ovens."

A baker's oven is described. It is built on piers of masonry. Below are two vaults, one for giving access to the flues, the other for the apparatus which gives motion to the travelling bed on which the loaves, etc. rest. The furnace is on a level with the oven; the flues lead over and into the oven, and under the " sole " or travelling bed. By dampers the heated air, etc. may be made to pass directly downward and to an outcast flue, or under the " sole " as required. An opening above the furnace admits air. Boilers for generating steam may be fixed over the furnace.

[Printed, 8*d*. Drawing.]

A.D. 1866, June 7.—N° 1573.

NEWTON, William Edward.—(*A communication from John Jay Squire.*)—" Jars for preserving."

The jars are intended to be placed, during the process, in large vessels filled with a heating medium. They are made with " pedestals " on their bottoms, so that their bottoms may be removed from contact with the vessel in which they are placed. They have close-fitting covers, and projections are made on the cover and the rim of the jar, so that an elastic band may be passed alternately over and under these projections to hold the cover on. Another elastic band may be used as " packing " between the jar and the cover. The cover is made saucer-shaped at top, and there is a hole fitted with a plug, so that fresh liquid can be introduced into the jar to supply loss from cooling, etc. The plug is replaced and superfluous liquid poured off from the saucer.

[Printed, 6*d*. Drawing.]

A.D. 1866, June 13.—N° 1608.

LUNT, John.—(*Provisional protection only.*)—" Heating bakers' " ovens."

The inventor relates to the heating of ovens by " chaffers," and consists in causing " a current of air to meet the products of " combustion " as they leave the chaffer. It also consists of " a " novel construction of chaffer." In it, " the portions placed " next the oven are made of any usual outline and of any " required size; the outer end thereof, however, is made with " double sides, so that there is an air space or combustion chamber " between the two, and the top of the said air space is left open. " A socket for the blow-pipe is left at the lower outer end in the " ordinary manner. Part of the air which passes through the " said blow pipe enters the chaffer amongst the fuel and supports " combustion, and part passes upwards into the air space above " mentioned, so as to meet the products of combustion, and " cause ignition thereof before they can escape into the flue or " chimney. The quantity or proportion of air allowed to pass " into the air space can be controlled by a valve or damper " placed therein or at an entrance thereto."

[Printed, 4*d*. No Drawings.]

A.D. 1866, June 25.—N° 1693.

AUXŸ, Ange Gaston Charles, Marquis of.—"Treating corn "and other materials."

The matters to be treated are placed in a cylinder mounted on a horizontal axle. By means of levers the cylinder is made to oscillate. It may be actuated by hand or otherwise. The invention is applicable to "roasting and cooking," but it is not stated how it is to be applied.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1866, July 9.—N° 1801.

MOSELEY, Walker.—"Apparatus for slicing and paring "cucumbers and other vegetables and fruits."

A bar of suitable size is mounted with clips so that it can be attached to the blade of a table knife. The ends of the bar are larger than the intermediate part, and formed excentrically with it. By this means the distance between the bar and the knife can be regulated. The bearings and clips may be stamped out of one piece of metal, or formed separately and soldered together. Flanges may be formed on the bar to prevent its sliding, or a pin on the bar may work in a slot in the socket. The fruit, etc. may be fixed on the end of a spindle which may be caused to revolve by a handle. The spindle is mounted on a stand which can be secured to a table.

[Printed, 8*d*. Drawing.]

A.D. 1866, July 23.—N° 1907. (* *)

MAGNIN, Alexandre.—"Lamps and other lighting and heat- "ing apparatus fed by mineral or other volatile liquids."

These lamps are "very economical" and are intended as a substitute for gas or oil lamps; they may be applied as a substitute for gas in heating ovens. The reservoir, which may be of metal, glass, or porcelain, "is completely filled with a spongy material "for absorbing the spirit of petroleum, which becomes trans- "formed into inflammable vapor." A tube of wire gauze "forms a free space in the centre" of the sponge and contains the wick. The burner is screwed on to the reservoir; it consists of an outer and an inner tube. The space between the tubes communicates with the gauze tube, "and serves for the escape of

" the gas or vapor which again joins the wick " at the top of the inner tube. The lamp may be mounted on a stand.

[Printed, 8*d*. Drawings.]

A.D. 1866, July 23.—N° 1910. (* *)

SOVEREIGN, Levi Lemon.—(*Provisional protection only.*)—" Implement for beating and cutting meat and other sub-" stances."

This implement is a beater made of some tough metal and " with teeth or projections on its face " which may be " of any " shape, but are preferably, of a square oblong form slightly " rounded at their extremities. The shank of the beater is pro-" vided with a hole for the insertion of a handle," to be secured in any way. " The shank is extended beyond the said handle, " and is formed with a lug or projection for securing the cutting " or chopping blade, which may be of any convenient size and " form, according to the substances intended to be cut or chopped " thereby. The said blade is formed of steel, and is secured to " the shank of the beater by screws or rivets in such manner as " to be easily removable from the said shank when required; " this allows blades of different size and form to be used with the " same hammer or beater, or allows a hammer to be used instead " of a blade. When two hammers are thus combined, the teeth " of each are differently formed and act in a different manner " upon the fibres of the meat, thereby producing the required " effect thereon." " By the use of the blades, which may be " varied according to the substance to be operated upon, meat, " suet, ice, sugar, or any other description of food may be cut or " chopped as quickly and finely as desired."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 7.—N° 2033.

LAKE, William Robert.—(*A communication from William Emerson Baker.*)—Stoning raisins, etc.

The apparatus may be of two forms. A handle is fitted at its end with numerous small wires a little distance apart. A surface of india-rubber is also provided. The raisin is placed on the rubber, and the handle stamped down on it. The wires pass through the fruit, and carry the stones with them through it. These are rubbed off the ends of the wires, and the fruit removed.

Or two rollers may be used severally provided with wires and a rubber surface. The raisins are fed between them from a hopper, and the stones expelled in the same way as before. Sets of scrapers are provided to clear away the stones and the fruit, which are removed into separate receptacles. The rollers are geared together.

[Printed, 8*d*. Drawing.]

A.D. 1866, August 15.—N° 2098.

HOFFMAN, John William, and WILSON, George Rowe. —(*Provisional protection only.*)—" Pickle piercer."

"This invention consists of an apparatus to facilitate the " piercing of vegetables for pickling, as walnuts or the like, and " to prevent the fingers from being stained; it is constructed of a " plate made of iron or other suitable material, in the centre of " which there is a block which can be raised or lowered by means " of a screw on the same plate; a little distance from the block " there are two uprights joined in the centre above the block by " a small tube; in this tube runs a piston or shaft, to which is " attached a small plate covered with points and a spring of india-" rubber or other suitable material in order to bring the piston " back after it has been inserted into the vegetables. Finally, " there is an elastic glove or finger protector made either wholly " or partly of india-rubber."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 18.—N° 2121.

STEVENS, Ebenezer.—(*Provisional protection only.*)— " Kitchen ranges, ovens, and steamers."

There are two fire-places in front of the range, one larger than the other. Each has " two half sliding doors." At one end of the range is a "coal bunker with top flat," on which is " a coal " plate which has a self-acting bolt, and which can only be " opened when bolted from the inside;" at the bottom of the bunker is a door which is locked. At the other end is a boiler, " or it may go round the back of the range as well." "A self-" acting handle water pot" is used to fill the boiler. "The " handle is hinged at the top of the pot, and carried over the " bottom of the pot at the back with an intervening handle " between the two hinges." The range may be set up in any ordinary fire-place, or may "run upon wheels." Hot plates are arranged over each grate. A fish-kettle is used which has a rim supporting a perforated plate to receive the fish and support it out of the water. On the hot plates is used "a compound "vessel." From an "ordinary boiler" projects a "nozzle which "has at the top a cover which hangs upon a hinge, and which "will cover the top of the pipe, or can be turned back. For hashes, soups, etc. a small saucepan fits inside this vessel. For steaming potatoes, etc., a steamer is used which has a socket, to fit on the pipe of the vessel. This socket is covered inside with a perforated "dome." "Before the range fires are ovens, the larger of which have a revolving stand mounted on a screw, "similar in principle to a music stool." The small ovens hang on the bars of the grate, they are supported on a plate which revolves. The large ovens are of tin "with an open front," and a door behind. "There is a fixed partition or shelf which admits "of the heat penetrating under the bottom of the oven." "When it is required to bake meat," etc., the inventor says, "I "place on the bottom of this fixed shelf a tin dish with a parting "in the centre, and on the centre of which I place a fixed "spindle or peg, and upon this spindle or peg I place a round "gridiron meat stand with a hollow tube in the middle, so that "the meat stand will turn round in the dish." At each end of the oven is "an indented groove or rim of tin to support a moveable iron shelf which has a flange turned down about two "inches." The flanges are to protect "dough or bread" from being scorched. The small ovens are semi-circular. Inside them is a wire frame to support a baking-dish, which can be screwed up and down. A hook for suspending articles to be cooked is also attached. A hook or small dish or rack may be hung in front of the fire without the oven. At the back of the oven is "a space "to hold a cooking and carving fork and steel combined."

[Printed, 4*d*. No Drawings.]

A.D. 1866, September 6.—N° 2291.

PIMM, GEORGE.—(*Provisional protection only.*)—"Ovens for "baking."

The invention is thus described:—

"This invention has for its object the more effectually heating "baking ovens by means of gas. For this purpose I form the

" oven of an iron casing lined with fire-bricks or tiles, and below " the bottom of this oven I place horizontal rows of gas tubing, " in which are numerous small perforations at which the gas is " burnt. The oven is enclosed within another larger chamber, " by preference of brick, in such manner as to leave a hollow " space all around the oven except at one of its ends, where the " oven is provided with a door; the space around the oven I " divide into flues or passages arranged in such manner as to " cause the heated air from the burners to pass all around the " oven by passing successively through these passages. This I, " by preference, do in the following manner:—The plates forming " the top and bottom of the oven are prolonged so as to separate " the spaces above and below the oven from the spaces around " the sides and end. The space below the oven is divided by a " partition into two longitudinal chambers or flues, and these " flues contain the tubing of which the gas burners are composed, " the air heated in these spaces passes through suitable passages " into the chambers or passages around the sides of the oven. " The space above the oven is divided into four chambers or " flues by three longitudinal partitions, and at one end of the " oven passages are formed for the heated air to pass from the " side flues into the two outer of the four flues above the top of " the oven. The heated air passes along these passages, and " at the opposite end of the oven it passes through suitable " passages into the two inner flues, and passes back along these " passages into a chimney by which it passes away; dampers are " placed both in the chimney and in the openings, which admit " air to the gas burners so as to regulate the draft."

[Printed, 4*d*. No Drawings.]

A.D. 1866, September 19.—Nº 2402.

KEENE, GEORGE.—(*Provisional protection only.*)—" Sausage " making and mincing machine."

The "propellers" are "in the form of a long oval or ellipse " with the ends flattened." They are perforated, and fixed on a central shaft fitted in a suitable case. Above one end of the case is a hopper, and the discharge opening is at the other end. Near this opening is an "ejector" formed of a number of "curved " blades or wings projecting from a boss" on the central axis, at the end of the series of propellers. The discharge opening is fitted with a sliding plate which regulates its size. In making sausages, this plate is reversed, and a tube fitted in a hole provided in the plate. On this tube the sausage skins are placed. The upper part of the case is preferably jointed by a hinge to the lower part. The spindle is turned in the usual way by a handle.

[Printed, 4*d*. No Drawings.]

A.D. 1866, September 20.—N° 2416.

WALKER, Andrew Barclay.—Brewing, etc.

An "attemperator" for use in cooling worts, etc. is described. A modification of this may be used for "bakers' ovens," and other places requiring heat. A series of tubes is passed backwards and forwards through a chamber in connection with a furnace so that the flame, etc. plays on the outsides of the tubes. Air is driven by a blowing apparatus into the tubes at one end and discharged at the other into the place to be heated.

[Printed, 2*s*. 6*d*. Drawings.]

A.D. 1866, September 28.—N° 2512.

WOOD, William, and WOOD, James William.—(*Provisional protection only.*)—Lozenges, pomfret cakes, etc.

In making lozenges the paste is formed into a block, and this block cut into slices by one or more knives. For shaping the lozenges a plate is used with perforations corresponding with the shape required, and another plate or frame with similar punches on it. A sheet of the paste is laid between these plates and the lozenges cut out by pressure. Another perforated plate may be used to keep the waste from adhering to the punches. Another set of punches may be used to press the lozenges out of the holes in the perforated plate. A pattern may be formed on the rims of the cutters and on the punches, so that the lozenges may be stamped with a pattern on their sides or edges.

In making pomfret or liquorice cakes, wires are used instead of knives for slicing up the blocks. The sheet of liquorice may be rolled on an engraved plate and afterwards cut by suitable cutters, or the pattern on the plate may be made so as nearly to cut through the edges of the lozenges, which are afterwards broken off. The sheet may be dusted during the process with powdered sugar, starch, etc. It may be dried on the figuring plate, or removed from it and dried. The sheets may also be varnished or glazed, and the varnish, etc. may be coloured. They may be printed in colours by surface printing blocks or stencilling, and by printing adhesive matter on them, and afterwards dusting on colours.

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 4.—N° 2560.

UNDERWOOD, George.—(*Provisional protection only.*)—“ Boiling, steaming, and cooking apparatus.”

“ The ordinary boiling apparatus ” is placed on a stand near the fire. To it is attached by a screw clamp a tube arrangement which passes into the fire. A bent tube, or two tubes united by a socket at their ends are fixed with their open ends into the boiler, one end passing further in than the other, “ in order that the heated water may ascend through such pipe “ and descend through the other.” The tube is bent so that it may conveniently fit into the grate. For stewing a recess or inner chamber is made in the boiler, and the food to be stewed is placed therein.

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 5.—N° 2567.

SCHRÖDER, Frederick Hills.—(*Provisional protection only.*)—Incubators.

A cistern supplied with hot water from a boiler is fixed over a series of receptacles for eggs. These receptacles have perforated bottoms; under them is a water-chamber; they are ventilated. Over the hot cistern is a perforated covering, and a “test pipe” for ascertaining the heat. Curtains are fitted round to retain the heat. The bottom of the cistern may be plate glass. The improvements “in whole or in part” may be applied to cooking apparatus in a manner not specified.

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 8.—N° 2587.

JOHNSON, John Henry.—(*A communication from Charles Vitoux and Alfred Braconnier.*)—(*Provisional protection only.*)—“ Treating stale bread and biscuits with a view to restoring their “ freshness.”

The treatment "consists in placing the bread or biscuits to "be operated upon in a closed chamber, and subjecting the "same whilst in the chamber to the action of steam which is "admitted therein for that purpose; after a few minutes ex-"posure to a moderate steam pressure, so as to ensure the "penetration of the steam into the pores or cells of the loaves or "biscuits, they are removed from the closed chamber, whereupon "the condensation of the steam contained in the goods operated "upon imparts a moisture and freshness thereto equal to that "of new bread. The chamber may be surrounded if desired by "a steam jacket, into which steam is primarily admitted with a "view to raising the temperature of the inner chamber before "admitting the steam therein, and thereby avoiding the collec-"tion of moisture therein by condensation of the steam against "the cold sides of the chamber. The steam employed may be "either ordinary steam or steam which has been dried or sur-"charged to a certain extent."

[Printed, 4*d*. No Drawings.]

A.D. 1866, October 20.—N° 2735.

HASELTINE, GEORGE.—(*A communication from William Hinchliffe.*)—" Travelling ovens."

"An oven is built in a circular or annular form, and of any "convenient size. The travelling plate travels on balls, by "preference made hollow and of cast iron; the said travelling "plate is also made of cast iron," and upon it are placed "bricks or tiles on which the biscuits are placed for baking. "The oven is heated by a flue underneath and by pipes through "it. At one portion of the annular oven an opening is formed "for the purpose of feeding and discharging, and this is the "only portion of the said oven which need be under cover; this "oven having been sufficiently heated, and the material to be "treated placed upon the bricks or tiles on the travelling plate, "motion is communicated to the latter by means of a cog-wheel "working on the outer edge of the travelling plate; the said "plate moves along over the balls until it has made a complete "circle, and has arrived at the feed opening, where it discharges "itself into a proper receiver by means of a plate placed con-"veniently for the purpose. The travelling plate having thus "discharged itself is again immediately re-fed, the motion "continues, and the same operation can be repeated." The spaces above and below the flues which pas over and beneath the oven are filled with sand or other non-conductor of heat. The use of two sets of balls instead of one is preferred.

[Printed, 8*d*. Drawing.]

A.D. 1866, November 8.—N° 2908. (* *)

THOMSON, James.—"Gas stoves for heating and cooking."

A stove is used consisting of two chambers connected together by hollow pillars or tubes open at their ends to both chambers. In the upper chamber is fixed a tube in the centre of which is supported a ring burner. The hollow pillars or tubes are filled with small wires or tubes so as to form very small passages. A tube rising to within a short distance from the top of the lower chamber serves to conduct away the gases produced by combustion. On the top is a cover rendered air-tight by luting, if desired. This cover may be removed and a culinary or other vessel may be placed over the opening. When the apparatus is employed in combination with an oven, the upper or combustion chamber is divided into two parts horizontally, the upper portion being provided with an oven formed in any suitable manner, so as to allow the products of combustion to pass around the oven; the upper portion being luted to the lower portion, it may be removed when desired, and a boiler or other vessel may be placed thereon; a regulator is used formed of an ordinary burner placed in the interior of the gas pipe, but "other suitable regulators may be employed."

[Printed, 10*d*. Drawing.]

A.D. 1866, November 9.—N° 2917.

HEAPS, Edward Knowles.—"Cooking ranges."

The first part of the invention consists in making a range convertible to an open or closed one. A top plate of the usual character to arranged to fit over the top of an open range; a flue is also arranged at the back of the back plate, so that the smoke may pass out thereby. This flue may be closed by a damper when the range is used as an open one, and the smoke passes in front of the back plate to the chimney. A moveable back plate is fitted in front of the fixed one, when the range is closed.

The second part consists in the adaptation of a curved flue to a side boiler. The flue passes in at the side and out at the back, through the lower part of the boiler.

The third part consists in making the bottoms of ovens of fire-brick. The brick rests on a ledge of iron formed round the oven. It is thickest at the side next the fire, and tapers gradually from that side.

[Printed, 8*d*. Drawing.]

A.D. 1866, December 1.—N° 3156.

WEBSTER, JAMES.—(*Provisional protection only.*)—" Lighting, " heating and cooking apparatus."

" The apparatus consists, first, of a cylindrical lamp in which " oil or spirit may be consumed, the holder of which lamp is " formed with a dipping tube for containing the wick and pre- " venting the liquid from being spilt should the lamp be turned " upside down. The kettle or water heater, which also forms " the chimney of the lamp, is made of a concentric cylindrical " shape, and when the lamp is intended for mining purposes the " burner and open top of the kettle are fitted with wire gauze. " The cylinders of the kettle are closed at the top and bottom, the " top being fitted with a perforated feed plug and nozzle, and with " a folding handle or handles for lifting it on and off the lamp. " In the side of this kettle an opening is formed in which a lense " is fixed, so that the light from the lamp is thus made available " for reading or lighting purposes, while it may be at the same " time operating as a water and air heater and cooking stove. " The lamp and heater are partly enclosed by removeable " uprights and a semi-cylindrical case, at the top of which a " pan and grid rest is fitted, and on the outside of which case " sockets are formed for holding various articles such as knives, " forks, pepper, salt, and the like. The stove thus formed and " fitted is enclosed in an outer case or cylinder, the bottom " part of the latter forms a pail for water, and the upper " portion or lid, which is capable of being secured to the lower " part, and is fitted with a handle for carrying the whole, affords " a space for containing meat or other edible matter."

[Printed, 4*d*. No Drawings.]

A.D. 1866, December 5.—N° 3197. (* *)

BRIDGES, THOMAS, and BIGWOOD, JOSHUA.—Steam boiler furnaces.

This invention, consists (1st) in introducing jets of heated air at the furnace door, and (2nd) in introducing jets of heated air at the bridge. The furnace door is made hollow in the form of a box, inclosed back and front with perforated plates, into which are set short tubes which form air passages through the door into the furnace, and also communicate with the interior of the door by means of lateral perforations in the tubes. A sliding plate, perforated to correspond with the ends of the tubes, is fitted outside to the front of the door, and when operated by means of a lever, is made to regulate the air draught through the door, the back plate of which, in addition to the tube openings is otherwise perforated for the passage of the air, which passes into the door through the lateral openings in the tubes. The door is heated by radiation from the fire, and the air which passes takes up this heat and carries it in jets into the furnace. Instead of a hollow door, a movable box may be arranged to heat the air draught inside the mouth of the furnace.

The invention may be applied to cooking stoves or ranges.

[Printed, 1*s*. Drawings.]

A.D. 1866, December 13.—N° 3274.

SINIBALDI, CELESTE.—" Stoves for cooking."

The stove is formed of two concentric tubes between which is a water space. The grate is in the interior tube. There are water spaces above, connecting the sides. It is closed at top by a plate, in which are holes. Into these holes projections on the bottoms of the cooking vessels fit. The vessels may be supplied with steam from the boiler. For baking, a plate without perforations is used, upon which a closed vessel is placed. Roasting may be done before the fire at an opening provided for a fire door in the boiler. The boiler may be continued above the fire, and there may be tubes through which the products of combustion pass. In this case there is a space between the top of the boiler and the hot plate. The chimney is fixed at the back. The fuel may be wood, coal, gas oil, spirits, etc. The material may be any suitable metal.

[Printed, 8*d*. Drawing.]

A.D. 1866, December 31.—N° 3453.

WARREN, Frederic Pelham.—" Cooking apparatus."

A boiler is made with two " wings " or projections, between which is placed the fire-grate; below the wings and the grate is an oven. The whole is enclosed within a casing, the top of which forms a hot-plate. There are openings in this plate, through which fuel may be fed, or on which cooking vessels may be placed. Behind the range is a hot closet, which has in it a ventilator. Flues pass from the top of the grate over the wings of the boiler, down the sides of them and of the oven to the front, then back under the oven and up the back of the range between it and the hot closet. Above the oven is a rake which can be moved backwards and forwards to clear away ashes, etc. The fire may be opened or closed. Cooking utensils and steamers may be placed on convenient parts of the range, steam being supplied from the boiler.

For use on board ship: A grate has a closed boiler above it, and a boiler with a loose cover by the side of the closed boiler. By the side of the grate and closed boiler is an oven; on the other side, below the open boiler is a hot closet. At the back and sides may be recesses in which cooking vessels are placed, these vessels being supplied with steam from the boiler. Separate flues are led through the opposite sides of the range, and by means of a damper behind, the products of combustion may be caused to pass through either or both as required.

Cooking ranges may be supplied " with two boilers so arranged " as that the one boiler is situated partly over and partly at the " side of the other."

[Printed, 1*s*. 10*d*. Drawings.]

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ERRATA.

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6. COPY of AMERICAN PATENT SPECIFICATION, and other DOCUMENTS relating to an invention [illegible] "A new and useful "improved method of removing incrustation from boilers," presented by Davis Embree, of Dayton, Ohio, United States of America, to The Government and People of the United Kingdom of Great Britain and Ireland, 21st April 1865. Price 6*d.*; by post, 6½*d.*

7. SUPPLEMENT to the SERIES of LETTERS PATENT and SPECIFICATIONS, from A.D. 1617 to Oct. 1852; consisting for the most part of Reprints of scarce Pamphlets, descriptive of the early patented Inventions comprised in that Series.

CONTENTS.

1. **Metallica**; or the Treatise of Metallica, briefly comprehending the doctrine of diverse new metallical inventions, &c. By SIMON STURTEVANT. (*Letters Patent, dated 29th February* 1611.) Price 1*s.* 4*d.*; by post, 1*s.* 5*d.*

2. A Treatise of Metallica, but not that which was published by Mr. Simon Sturtevant, upon his Patent, &c. By John Rovenzon. (*Letters Patent granted A.D.* 1612.) Price 4*d*; by post, 4½*d.*

3. A Commission directed to Sir Richard Wynne and others to inquire upon oath whether Nicholas Page or Sir Nicholas Halse was the first inventor of certaine kilnes for the drying of malt, &c. &c. (*Letters Patent, Nos.* 33 *and* 85, *respectively dated* 8*th April* 1626, *and* 23*rd July* 1635.) Price 2*d.*; by post, 2½*d.*

4. Dud Dudley's Metallum Martis; or iron made with pit-coale, sea-coale, &c. (*Letters Patent, Nos.* 18 *and* 117, *respectively dated* 22*nd February* 1620, *and* 2*nd May* 1638.) Price 8*d.*; by post, 8½*d.*

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Newcastle-upon-Tyne (*North of England Institute of Mining Engineers*).
Oxford (*Bodleian Library*).
Stretford, near Manchester (*Mechanics' Institute*).
Swindon, New (*Mechanics' Institute*).
Tamworth (*Library and Reading Room, George Street*).
Yarmouth, Norfolk (*Public Library, South Quay*).

British Colonies and Foreign States.

British Columbia—Mechanics' Institute, Victoria.
——— Public Library, New Westminster.
France—Academy of Science, Paris.
Germany—Kaiserliche Universitäts und Landes-Bibliothek, Strasburg.
Netherlands—Bibliothéque de l'Ecole Polytechnique de Delft.
Russia—Imperial Technological Institute, St. Petersburg.
Turkey—Literary and Scientific Institute, Smyrna.
United States—American Academy of Arts and Sciences, Boston.
——— American Institute, New York.
United States.—American Society of Civil Engineers, New York.
——— Industrial University, Champaign, Illinois.
——— Mechanics' Institute, San Francisco.
——— Mercantile Library Association, Pittsburgh, Pennsylvania.
——— Odd Fellows' Library Association, San Francisco.
——— Smithsonian Institute, Washington.
——— Wabash College, Crawfordsville, Indiana.
——— Young Men's Christian Association, Scranton, Pennsylvania.

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Mondays, Tuesdays, and Saturdays, 10 A.M. till 10 P.M.

Wednesdays, Thursdays, and Fridays, from 10 A.M. till 4, 5, or 6 P.M., according to the season.

If any Patentee should be desirous of exhibiting a model of his invention in London, he may avail himself of this Museum, which has been visited since its opening on the 22nd June 1857 by more than 3,000,000 persons. The model will be received either as a gift or loan; if deposited as a loan, it will be returned on demand. Before sending a model it is requested that the size and description of it shall first be given to the Superintendent of the Patent Office Museum.

GALLERY OF PORTRAITS OF INVENTORS, DISCOVERERS, AND INTRODUCERS OF USEFUL ARTS.—This Collection, formed by Mr. Woodcroft, and first opened to public view in 1853, is now exhibited in the Patent Office.

Presentations or loans of Portraits Medallions, Busts, and Statues, in augmentation of the Collection, are solicited. They will be duly acknowledged in the Commissioners of Patents' Journal, and included in the next edition of the Catalogue.

All communications relating to the Patent Office, or to the Museum and Portrait Gallery, to be addressed to B. WOODCROFT, Clerk to the Commissioners of Patents and Superintendent of the Patent Office Museum, at the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.